



EQUILIBRIUM[®]

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

1989 ISSUE NO. 1

PAGES 1189-1216



PAGE 1190

Cover Picture

This truly magnificent Gold Standard Balance riveted our attention, when Will Andrewes was kind enough to open the doors of Harvard University's Historical Scientific Instrument Collection to ISASC members at our Boston Convention in April 1988. The oval glass dome had to be removed to give a clear view of the mechanism, unfortunately, but when covered, the whole piece looks truly jewel-like and delectable.

Editor's Comment

There are two generalisations about collecting scales, which most members will recognize:- 1. Ideas for the design of a scale were usually thought of earlier than you think! 2. Any particular scale in your collection was usually made later than you hoped! But finding out such things adds a whole new horizon of interest to the hobby of collecting. There has been so little historical research in the field of scales that information is being turned-up continually. The opportunities to make discoveries, even for inexperienced researchers, are wide open.

Browsing in your local library and handling exhibits in museums (particularly those held in store rooms) can produce all kinds of new information, advertisements for scales, contemporary comments about weighing, makers' dates in directories, makers' catalogues, unheard-of types of scales, makers' names or trade-marks, scales for undreamed-of purposes, dated examples, etc. etc.

INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

Founded September, 1976

111 North Canal Street • Chicago, Illinois 60606 • U.S.A.

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Herbert's

THE TALE OF A LION


JAMES HERBERT



Herbert & Sons Ltd., makers of Lion Weighing Machines, were established in the City of London over 250 years ago. On November 21st. 1988 they are celebrating a very special anniversary, for it was on that day one hundred years ago that the firm's application for registration of the Lion trade mark was approved by the Patent Office and recorded in the Trade Marks Journal. The trade mark so registered was, as it is now, a rampant lion holding beam scales, but at that time it incorporated a Union Jack shield inscribed 'Strength and Justice'.

TRADE MARKS JOURNAL.

[November 21, 1888.]

Trade Mark.	Name, Address, and Calling of Applicant.	Description of Goods.
	GEORGE HERBERT, trading as HERBERT & SONS, 6 and 7 West Smithfield, London: Scale Makers, Cutlers, and Machinists. (By Consent.)	Weighing Machines, Scales, Salting Machines, Sausage Chopping and Sausage Mincing Machines.

Herbert's can trace their origins back to the 1730s when John Wood started a family scalemaking business in Queen Street, Cheapside. By 1768, the business had passed to a relative, Richard Wood, and then around 1812 to another relative, Robert Wood. In 1813/14, Robert Wood moved the business to premises at 7, West Smithfield to get the custom of the butchers who came daily to the meat market. Apparently the move was successful and expansion into the next door premises followed. He was already at 6 & 7 West Smithfield in 1842 when Thomas Herbert (1811- 1876) set himself up in a scale-making business in St. Georges Street, Tower Hamlets, having served his apprenticeship and the succeeding ten years as a journeyman with the firm of Pallet's.

Because Thomas Herbert was born in 1811, and would have been fourteen in 1825, he must have been apprenticed to Elizabeth Mary Pallet and subsequently employed as a journeyman by Elizabeth Pallet then by M. Pallet & Son and then by Thomas Pallet Junior.

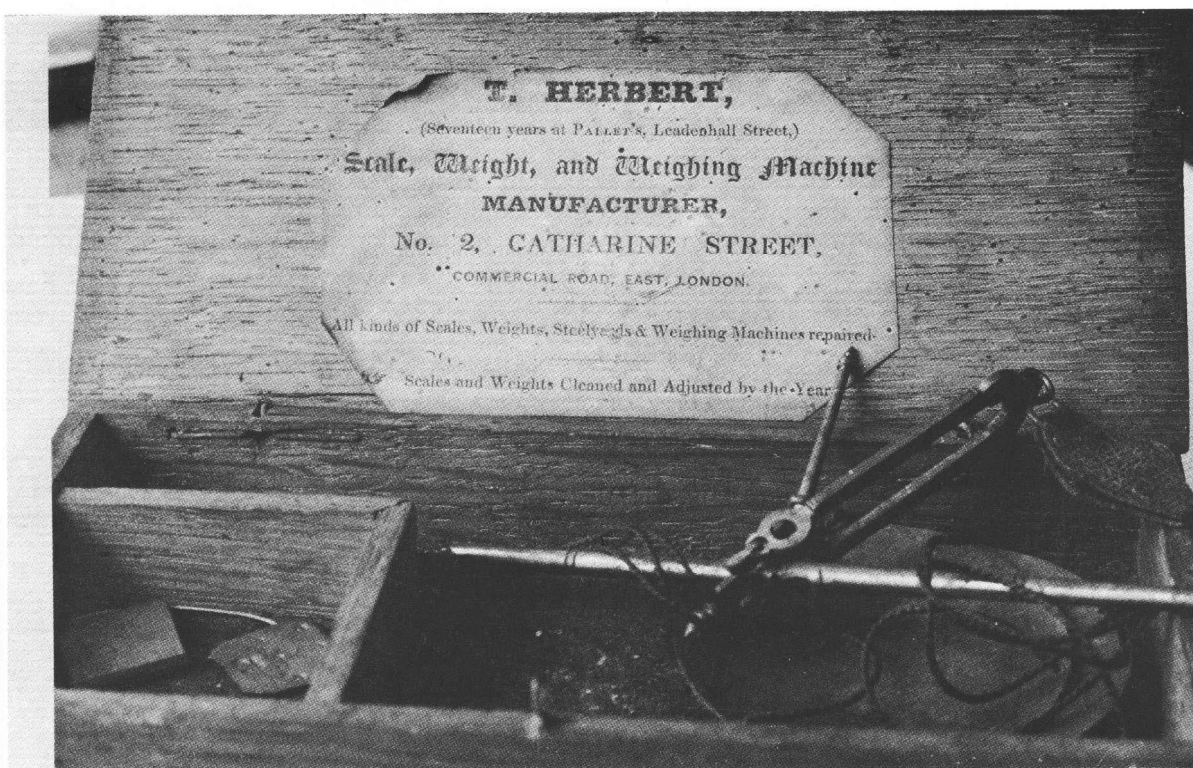


Fig. 2. Apothecary scale made by Thomas Herbert between 1842 and 1867. The date is not specific because he never advertised this address in any trade directory so far found. The oak box has the cheapest type of hinge- two lengths of wire looped round each other and one driven into the box and bent back, and the other driven into the lid and bent back. The lining in the box is attractive dark red velvet, the steel beam has simple swan necks and the scale was held up by its leather tab.

CHAIN OF KNOWLEDGE

John Wood.....	I734-I765
Richard Wood	I768-I820
Robert Wood.....	I817-I853
Robert & Henry Wood..	I854-I861
Henry Wood.....	I862-I868
Thomas Herbert.....	I842-I867
Thos. Herbert & Sons.	I868-I910
Herbert & Sons Ltd...	I911-I988

Thomas Herbert soon built a thriving business at St. Georges St., and added further premises in Gray's Inn Road. Then, in 1868/69 he acquired the business of the Woods at 6 & 7 West Smithfield from Henry Wood, the last of the line. This address was to remain in use by Thomas Herbert & Sons until 1968.

George Herbert (1842- 1929) was a son of the founder, and in 1888 when the trade mark was registered, he was the proprietor of the business. It is conjecture as to how George put together the combination of symbols which became the Company's Trade Mark, but with historical hindsight and some knowledge of the man, it might have been as follows:-

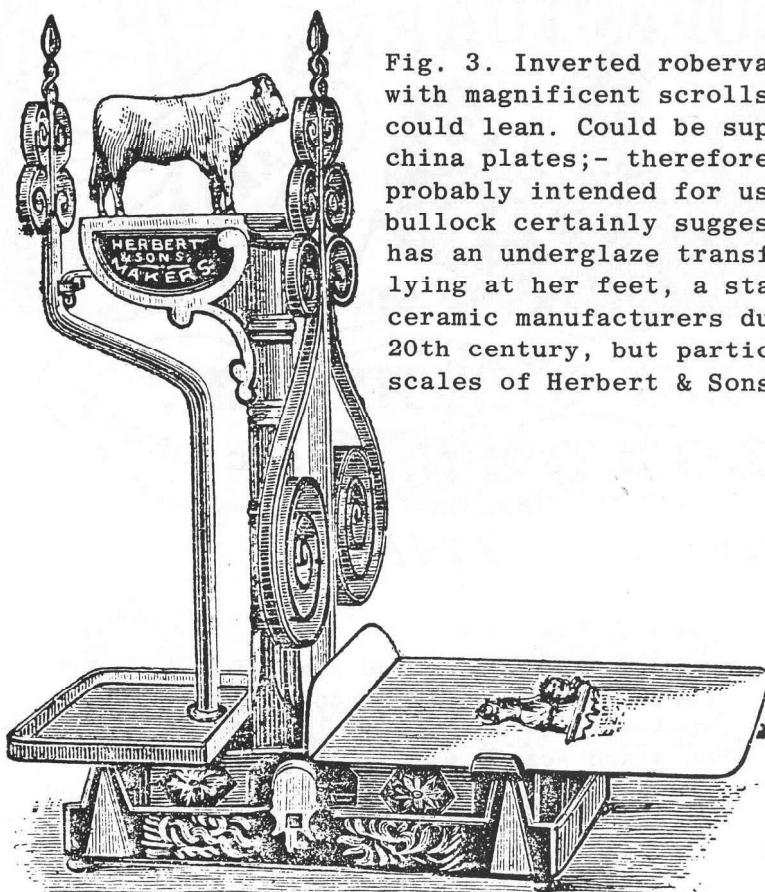


Fig. 3. Inverted roberval in the 1870 catalogue with magnificent scrolls against which the goods could lean. Could be supplied with round or square china plates;- therefore a shop counter machine, probably intended for use by a butcher. The bullock certainly suggests that. The china plate has an underglaze transfer of Justice with a lion lying at her feet, a standard design supplied by ceramic manufacturers during the 19th and early 20th century, but particularly suitable for the scales of Herbert & Sons.

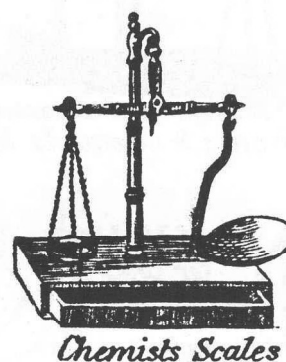
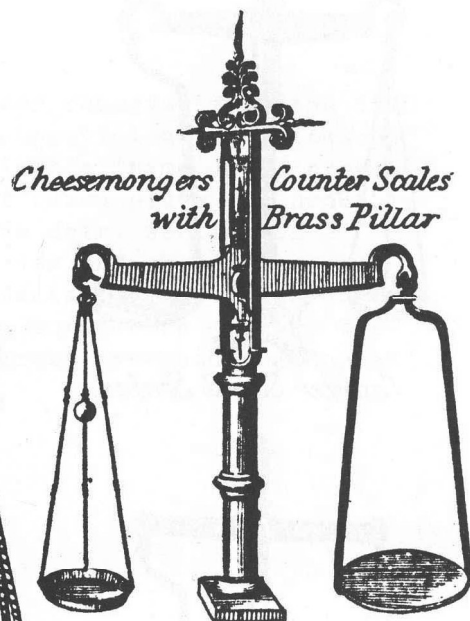
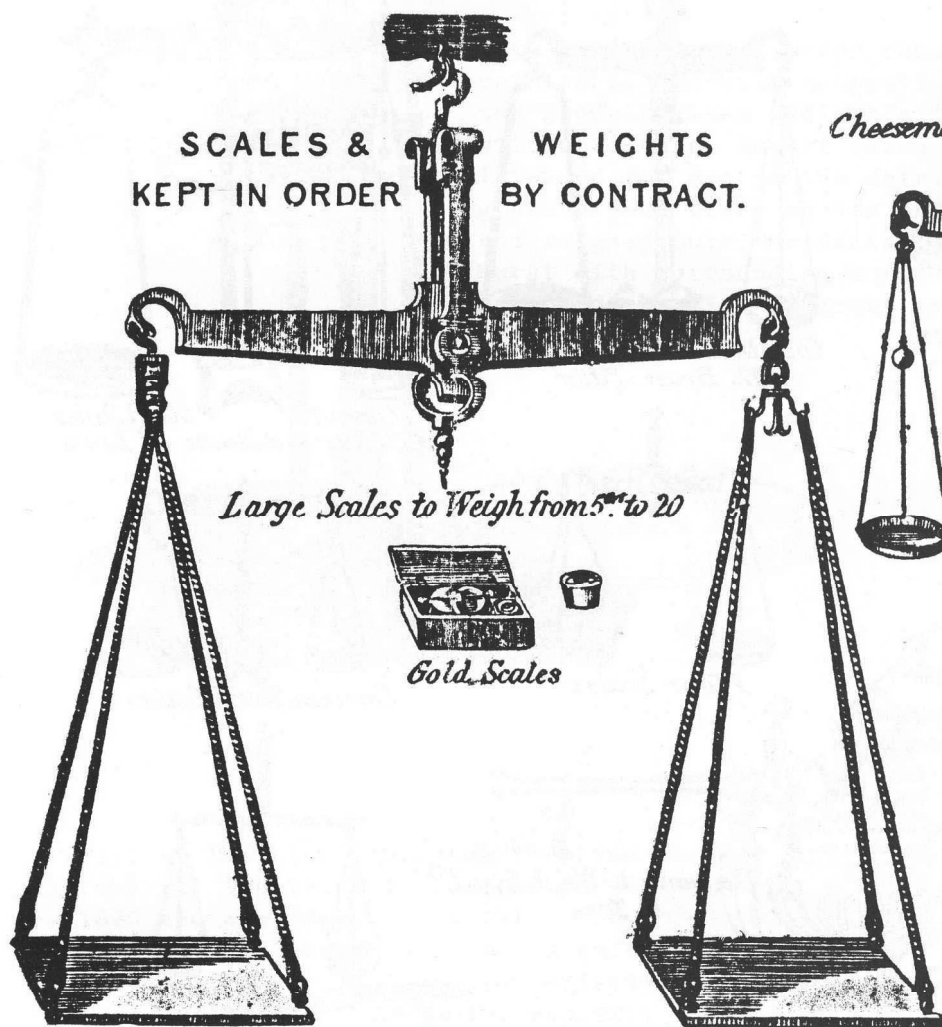
The adoption of the lion would have appealed to George, firstly, because the Herbert family crest incorporates three lions rampant; secondly, because in those days it was common for traders to incorporate the Royal Coat of Arms, (which includes a lion bearer) in their advertising literature as an indication of their patriotism. Herbert & Sons followed this practice, as the illustration of an earlier hand sheet indicates, Fig. 4. Thus, to George, a keen patriot and Royalist, the use of a lion in respect of his business would have come naturally. At the same time, it would have been a symbol of the strength and reliability of his weighing machines.

Fig. 4.

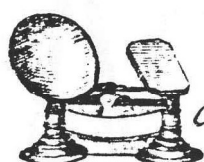
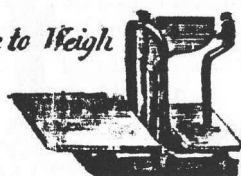


Fig. 4, 5 & 6. A tantalising glimpse of the heading and some of the scales shown on the 2 foot (60 cms.) handbill. The whole handbill is far too large to show in its entirety, but it also includes a lovely brass, turned-pillar scale with box ends; iron stand scales with a twisted pillar; large roberval with a scoop on a wooden barrow; sack scales for bales etc. and a rugged butchers' beam hanging from a hook in the ceiling, all extremely reminiscent of the scales shown on handbills c.1828 although these were for sale after 1865. For comparison, see pp. 136 & 697, EQM.

SCALES & WEIGHTS
KEPT IN ORDER BY CONTRACT.



Inverted Machine to Weigh from 1^{lb} to 3 Cwt



Counter Machines for Shop and Domestic purposes

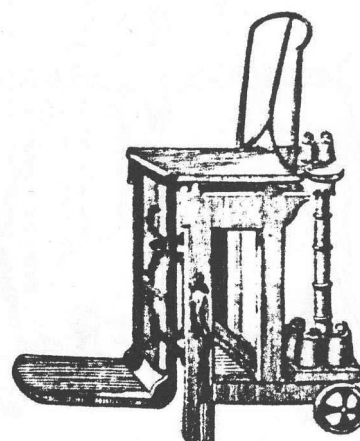
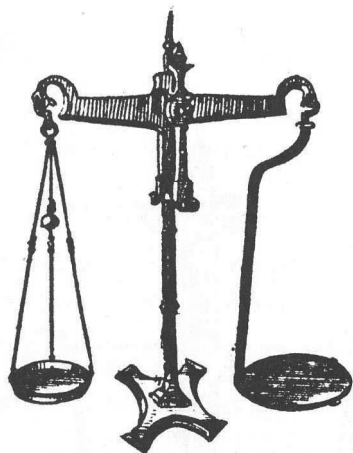
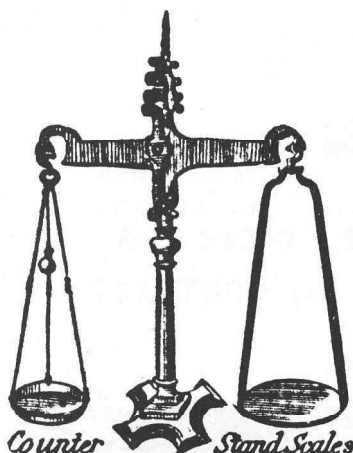


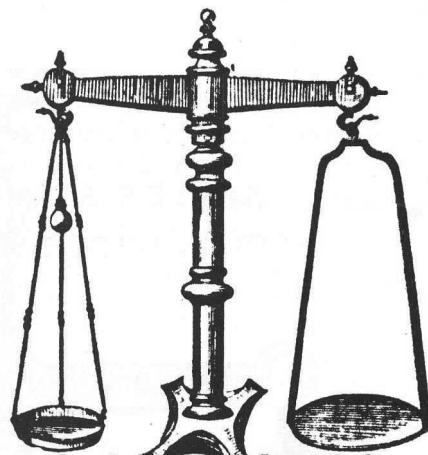
Fig. 5.



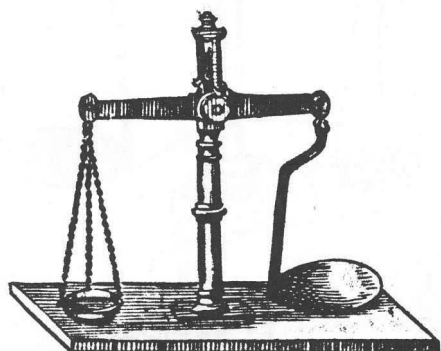
Counter Stand Scales



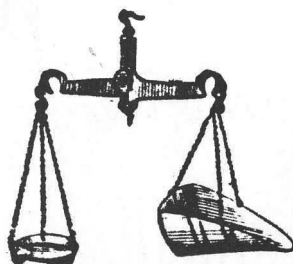
Counter Stand Scales with Brass Pillar



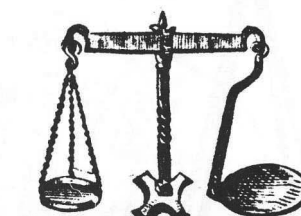
Counter Stand Scales with Box end Beam all Brass



Grocers & Chemists Scales



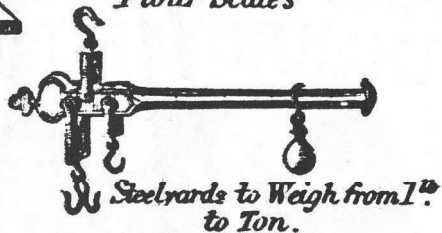
Flour Scales



Common Stand Scales



Wharf Machine for Coals

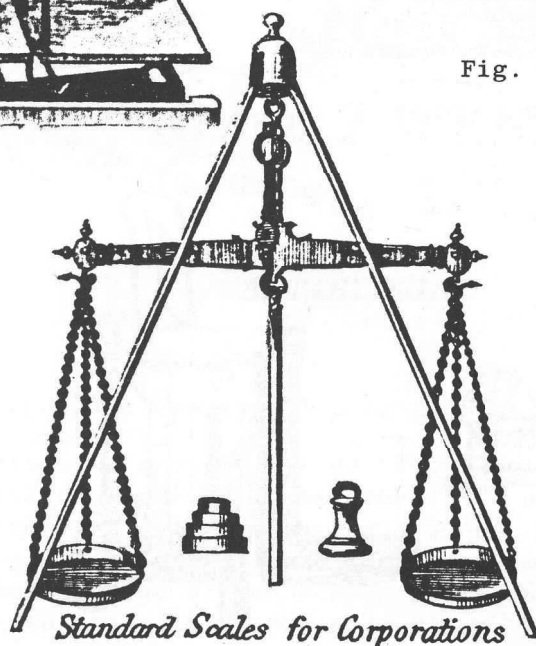


Steelrads to Weigh from 1^{lb} to Ton.

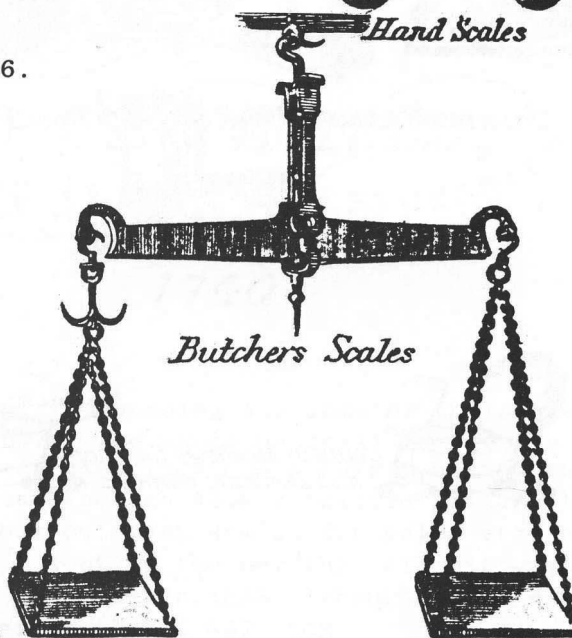


Hand Scales

Fig. 6.



Standard Scales for Corporations



Butchers Scales

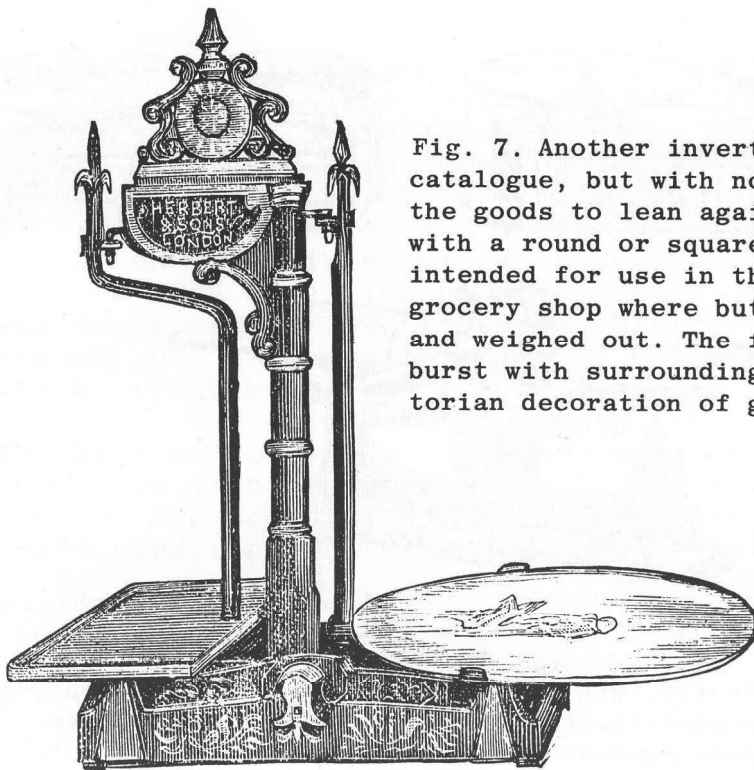
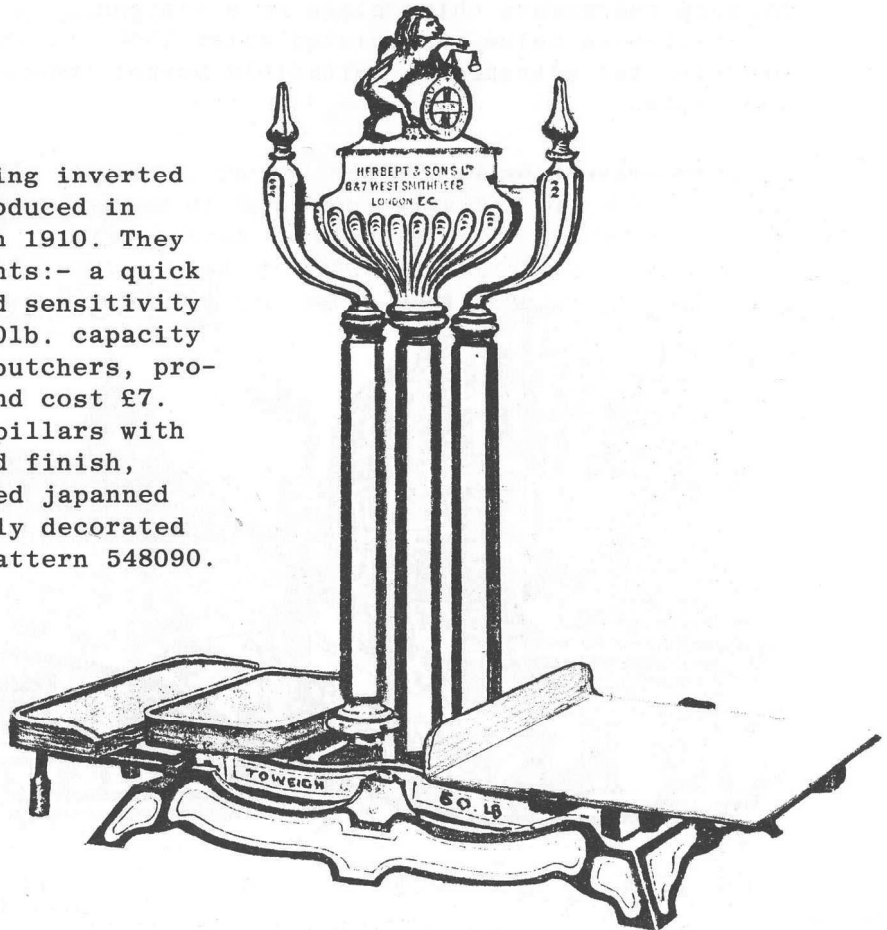


Fig. 7. Another inverted roberval from the 1870 catalogue, but with no provision for allowing the goods to lean against a frame. Also provided with a round or square china plate, so probably intended for use in the dairy section of a grocery shop where butter and cheese were cut and weighed out. The finial is a pompous sunburst with surrounding scrollwork - a very Victorian decoration of great eye-catching appeal.

Fig. 8. The Lion vibrating inverted roberval was first introduced in 1890 and was improved in 1910. They boasted of 3 strong points:- a quick movement, a big fall and sensitivity to $\frac{1}{32}$ of an oz. The 50lb. capacity scale was intended for butchers, provision merchants etc. and cost £7. If provided with china pillars with a white or pink and gold finish, £7.10s. Could be supplied japanned any colour and handsomely decorated with gold. Registered pattern 548090.



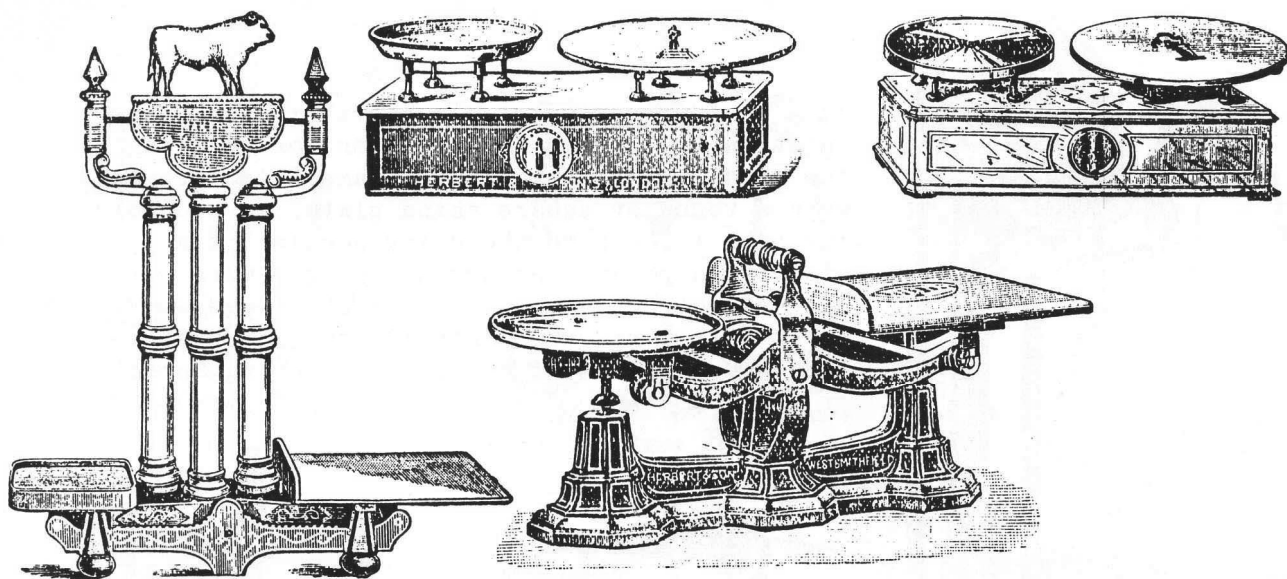


Fig 9. More 1890 scales. The top left inverted roberval could be supplied with 3 brass pillars or 3 porcelain pillars, either of which must have been magnificent. The boxed-in Panzeder machines on the top right could be supplied with a china plate or a tin pan. The bill-head below was printed after 1900 and shows the shop directly opposite the entrance to Smithfield Market, where livestock was sold wholesale.

Telegrams:—"HERBERT, WEST SMITHFIELD"

Telephone:— No. 1:977 CENTRAL.

6 & 7, West Smithfield.
(OPPOSITE CENTRAL MARKET)

LONDON, E.C.

ESTABLISHED 1760

HERBERT & SONS, LTD.

Patentees
and Manufacturers of
Scales & Weighing Machines
AND CONTRACTORS.

Butchers
& Provision Dealers
SHOPFITTERS

Machinery, Cutlery, Tools AND
FITTINGS.

HISLOP
EDINB
TRADE MARK.

The West Smithfield premises are situated not very far from the 'Old Bailey' Criminal Court with its familiar figure of Justice, holding a sword and scales, standing on top of the building. This figure must have been seen regularly by George on his visits to St. Sepulchre's Church nearby, of which he was a church-warden. The figure of Justice and Scales had also been the shop sign of the Woods at their premises in Queen Street. Perhaps this sparked off the idea of a lion holding scales. It was this emblem that was incorporated into the front of the new building which George Herbert had built on the site of 6 & 7 West Smithfield in 1889, where it can still be seen to this day.

By the time Herbert & Sons became a Limited Company in 1909, the cast iron lion, which appears on all weighing machines manufactured by the company, was a very well-known feature among the many users, and a number of these machines are still in use today.

During the 20th century, the trade mark has been modified from time to time to fit in with the fashion of the day. The great Wembley Exhibition of 1930 saw the introduction of an 'art deco' lion, Fig. 10, known throughout the company as the Wembley Lion, while, on moving to the expanding town of Haverhill, Suffolk in 1968, an angular diagrammatic lion within a lozenge was adopted, Fig. 10. This design can be seen over the front entrance of the

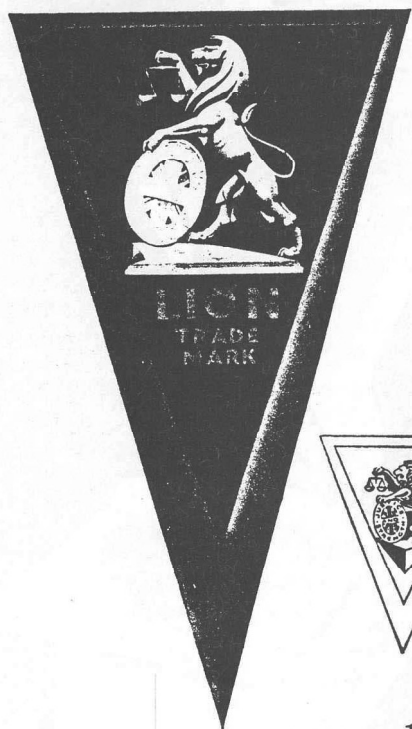


Fig. 10. On the left is shown the updated design of the lion, with his new sleek mane, first used in 1929, but widely advertised in 1930, as the "Wembley Lion". Below are the later modifications of the lion.



Established 1760



Established 1760

.....1951.....1968.....1972.....1988

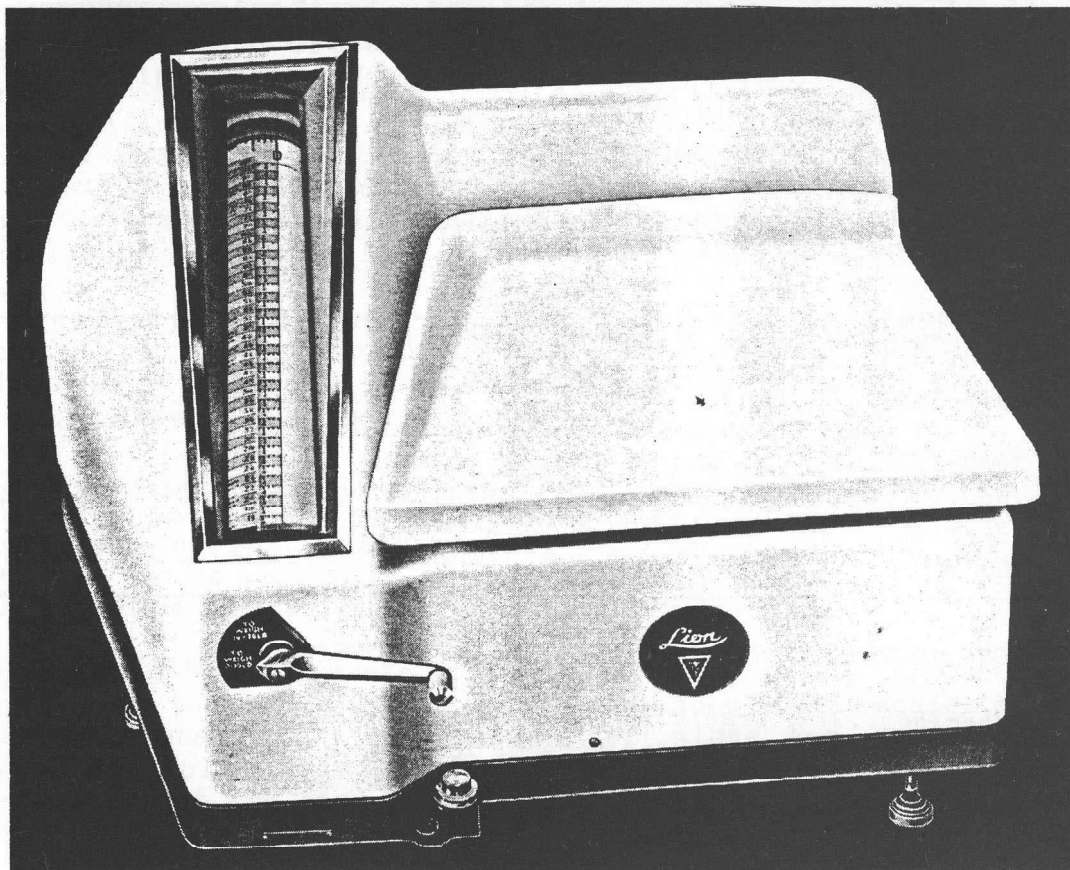


Fig. 11. In 1933 the inverted roberval still had the lion on top with "MANY THANKS" underneath. To quote the catalogue; 'Now, we've enclosed every moving part, to make the Enclosed Model Lion absolutely hygienic and cleaned in a flash. As you see, the Base and Pillar are coated with snow white porcelain Enamel fused on steel, smooth and lustrous, keeping its good looks for ever. The weight board is quickly detachable and a few seconds wiping with a damp cloth is all you ever need to clean your scale and to keep it clean, white and glistening, to build goodwill and earn profits for you. It creates a lot of confidence and extra custom to see food weighed on a clean, efficient scale, in a clean efficient shop.'

Fig. 12. This over-and-under fan scale was made in 1950, for factory use only. Made in fixed capacities of 2oz. 4oz. 8oz. or 16oz., for packing, checking or repetitive weighing. Special capacities could be supplied, with fittings to suit any trade. The chart was graduated in 2 dram divisions up to 2oz. only.



Fig. 13. In 1969, Herbert & Sons Ltd. were still producing specialised scales for butchers and pre-packers. This fully automatic scale had a price chart ranging from 15p. per lb. up to 100p. per lb., for loads up to 20lb. (The British disliked the idea of the kilogram and were arguing and vacillating about whether to use it.) The model for pre-packers had a taring facility and a price selector.



new building. It was subsequently followed by the segmented lion now appearing on Company headings and literature Fig. 10.

Thus, one can see how the Company has made good use of its Lion trade mark for one hundred years, and no doubt, further modifications will be made to keep up with the trends of the period.

Today, scale making is still the central core of the Company operation. However, in the intervening 250 years, many changes have taken place. These have not all happened slowly; indeed, since the move to Haverhill, Herberts have seen more development than in the first two hundred years altogether.

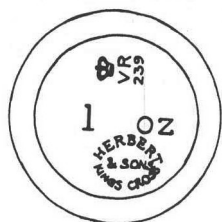


Fig. 14. A brass trade weight stamped Herbert & Sons, King's Cross. Stamped in London (area 239) during the latter part of Queen Victoria's reign.

As technical progress has continued at an even faster rate, so the Company has adopted and even pioneered innovations in weighing systems that have put it among the leaders in this specialised field. In the process, the Company has become a 'text-book' case for showing how old established companies can survive in the new electronic age, with the transition from mechanical engineering to electronic design and assembly in the late 1960s and 70s. This led to the development of system-based products in the 1980s, linking equipment modules of Herbert's manufacture with special units from all over the world.

It is interesting to record that the author, James Herbert, is in the fourth generation of the family, and that the current Managing Director, Richard Herbert, is in the fifth generation of the family in the business.

SOME ADDRESSES USED BY THOMAS HERBERT

1842-1849...39, Cannon Street, Ratcliff, London
" - " ..39, Cannon Street, St. George St., London
1850-1867...47, St. George Street, London
1860.....37, Chichester Place, Gray's Inn Road, London, E.
1864-1867...319, Gray's Inn Road, London, W.C.
Unknown....2, Catherine Street, Commercial Road East, London

SOME ADDRESSES USED BY THOS. HERBERT & SONS

1868-1885...319, Gray's Inn Road, London, W.C.
1868-1910...47, St. George Street, London, E.
1869-1910...6 & 7, West Smithfield, London, E.C.
1886-1910...319 & 321, Gray's Inn Road, London, W.C.
Unknown....King's Cross, London

SOME ADDRESSES USED BY HERBERT & SONS LTD.

1911-1971...6 & 7, West Smithfield, London, E.C.1
1928.....234, Corn Exchange Buildings, Manchester
1928-1950..(works) 206, Goswell Road, London E.C.1
1935-1940..246, Corn Exchange Buildings, Manchester
1933-1962..38, Charterhouse Street, Smithfield, London, E.C.1
1938-1971..(works) Eleys Estate, Angel Road, London, N.18
1951.....212, Regent Road, Salford, Manchester, 5
1968-1988..30, Thorp Street, Eccles, Manchester
1981-1988..Ickworth Park Road, London, E17 6JQ
1988.....26, Cradley Road, Cradley Heath, Warley, West Midlands

To Clean or Not To Clean ----

Part 1

Michael Crawforth

* To clean, or not to clean, that is the question. Whether 'tis nobler in the mind to suffer the slings and arrows of one's critics, or to take abrasives against a mass of oxidation and, by polishing it, end it.* Hamlet's soliloquy is often parodied to express an all-too-real dilemma. The question 'should scales or weights be cleaned or should they be left as they were found' is just such a problem.

The arguments in favour of cleaning are that it prevents further deterioration, it restores the article to something like its original condition, it makes the items look more attractive, and they are more enticing in the market place.

Against this, the anti-cleaning lobby would claim that the existing condition is part of the history of the scales or weights, and that cleaning removes part of that history. They also point out that bad cleaning techniques can do more harm than good, and that an age-old patina is a beautiful thing in its own right.

I believe that both arguments are right, according to the circumstances, and that one must be most careful and selective about which scales or weights should be cleaned and which should be left alone. For example, it is the duty of all collectors, as custodians of our heritage, to prevent deterioration of the items in their collections. Active orange rust on ferrous metals, active bright green verdigris on copper, brass and bronze, and worm holes in wood MUST be treated as soon as possible.

On the other hand, dark brown 'dead' rust, the rich all-over brown patina on copper, brass, and bronze, and the smooth patina on well-handled wood should be left as the venerable signs of age and use. They preserve the value, too, especially in the case of coin weights, nesting weights, and any bronze article. Cleaned and polished coin weights or nesting weights have a very low market value.

These extremes are clear, and the collector's course of action needs no debate, but between these limits there fall many, many scales and weights which are spotted with bad oxidation, have a most unattractive, black patchy appearance, or which are just plain dirty! In such cases, cleaning can make a great improvement. When advocating this course of action, it is worth remembering that when scales and weights were in use, they would have been maintained in a relatively clean state, and it is the result of neglect, misuse, disuse, and relegation to a damp outhouse which has led to their deterioration - dilapidation may be part of their life, but it is not the result of a venerable stage of their history.

One of the most difficult aspects of cleaning is how far to go. I strongly believe that old items should continue to look old. To clean them until they look as if they have just been made not only destroys their historical charisma but presents a disturbing contradictory appearance. I have seen some scales polished so highly all over that they were reduced to mere glossy ornaments. Even when new, scales and weights were never polished to such an extreme. What is the point of having something which is revered for its age and its place in the history of our ancestors if it looks new ?

What, then, is the alternative? My solution is to clean the item in a manner which looks as if it were currently in use. In other words, those parts which are readily accessible are reasonably clean, while those parts which are awkward to reach are left relatively unclean. I can hear many would-be cleaners heaving a sigh of relief that they do not need to get into all the obscure corners which abound, particularly on scales. But life is not so simple. The chances are that the inaccessible parts have deteriorated well beyond the desired stage, and so they must be given some cleaning. Thus, the condition that I aim for is 'Old but well cared-for'.

How should one approach cleaning? Firstly, it is crucially important to use the right materials and techniques. Failure to do this can result in irreparable damage and loss of value, or the elimination of historical evidence. If you cannot obtain the correct materials or discover the correct methods, DO NOT CLEAN scales or weights. Never compromise and use materials which are approximately right.

Although there are some short cuts, cleaning is mostly hard work and lots of 'elbow grease', plus scrupulous care and common sense. One of the first things to learn is how to achieve that 'old but cared-for' appearance. Try to imagine which parts would have been easily cleaned in use and concentrate on those, and you will soon develop the skill of leaving traces of oxidation in awkward places to show the age of the article. This restraint in cleaning is especially necessary if you dismantle scales for cleaning, which would never have happened in use (except when in the hands of the scale repairer). Dismantling makes life very much easier, and in many cases it is the only way that a complicated scale can be adequately cleaned.

Taking scales apart and building them up again needs care, too. Antique dealers' shops frequently have scales which have been reassembled incorrectly, because the cleaner was not experienced in their construction. If you cannot dismantle and reassemble scales with confidence, take simple precautions. There are several things you can do to make life easier for yourself. Make notes about the tricky bits; take photographs; tie a tag to each part as you take it off with a description of where it fits; keep related items in trays or little boxes - this is particularly important for the screws in scales made before about 1850. In those early days each screw was individually made to fit its particular threaded hole, and it may not fit any other hole even though the size looks the same to the eye. Remember, the scale manufacturer had a location problem, too. So, if you are lucky, you may find that the maker identified each part and its location with a little stamped number, or with a series of dots. Thus the parts marked with two dots go together, those with five dots go together, and so on. If you

have used tie-on tags, remove the tag for cleaning then tie it on again immediately.

Of course, the cleaned finish you give to your scales or weights should be related to their type, quality, date and purpose. For example, a simple iron market steelyard would have had a 'white' finish when new, as done by a whitesmith. i.e. finished smoothly with fine abrasive cloth or paper, but NOT polished. Alternatively, it may have had a 'black' finish, as from a blacksmith, which was the result of heating in a furnace and hammering the metal to shape. (This cannot be satisfactorily restored). On the other hand, in 18th century England, fine quality steel beams for coin scales were polished to a jewel-like mirror finish, so if the rusting is slight, then this is the standard of finish to aim for on the accessible parts. Late Victorian 'apothecary' scales, however, were more likely to have had the cheaper 'white' finish described above.

Roughly finished Middle Eastern scales which still have their file marks showing, should not be polished. Such a finish would be contradictory and inappropriate. They should be given a simple wire brushed finish. Similarly, a cast iron weight should be brushed only, and not highly polished as is seen in some antique shops.

The brass parts of precision balances were usually finished on a fine finishing machine, which gave the surface fine parallel lines and a bright, but NOT polished, appearance.

In addition to the aged patina on brass or bronze, the would-be cleaner must be most careful to recognize the intentional dark brown-black patina which was specially applied, using chemicals, by the makers of some 19th century English letter scales. This finish was much admired at the time and it may have been introduced, as a sign of mourning, at the time of Prince Albert's death in 1861. It should definitely not be polished off. Examples of scales which had this finish are some 'candlestick' letter balances, and nearly all the 'ball-and-hanger' letter scales. This sombrely attractive finish is even in colour and consistent in application, and may be described as 'bronze' in antique shops, and sometimes is even mistaken for iron! The nicest examples of this rich brown patina were enhanced by small areas picked out in polished brass protected with gold lacquer (not gold paint).

Beware, also, of destroying other special finishes, such as nickel or gold plating. Matt gilding was applied to the more decorative and luxurious letter scales, or coin scales, but the coating was microscopically thin. Any attempt to polish it will destroy the intentional and attractive matt finish.

One of the most difficult problems the cleaner/restorer has to deal with is painted scales. Nothing looks worse than fresh paint on an old scale, especially if it is accompanied by amateur repainting of the maker's name and decoration. The best advice is to accept that age has caused much of the paint to be lost, and to be grateful for what evidence still remains. If almost nothing is left, then repaint with a colour which is identical to the

original. If necessary, get help in mixing the right colour, from a selection of modelling enamels, and, if desperate, an admixture of artist's oil colours. When the paint is dry, it is possible to remove the ultra-new look, but the aged patina cannot be restored.

Before listing some of the cleaning methods and materials which the author has found to be effective, a final WARNING:- Careless cleaning can destroy subtle shapes, it can remove marks, verification stamps, postage rates, painted decoration, surface coatings, venerable patina and other forms of historical evidence, and it can reduce the value. If you are patient by nature, and skilful with your hands, go ahead and clean. If you do not have these skills (and do not fool yourself) leave things alone, but DO get someone with the required skills to prevent serious deterioration from active rust, verdigris or woodworm.

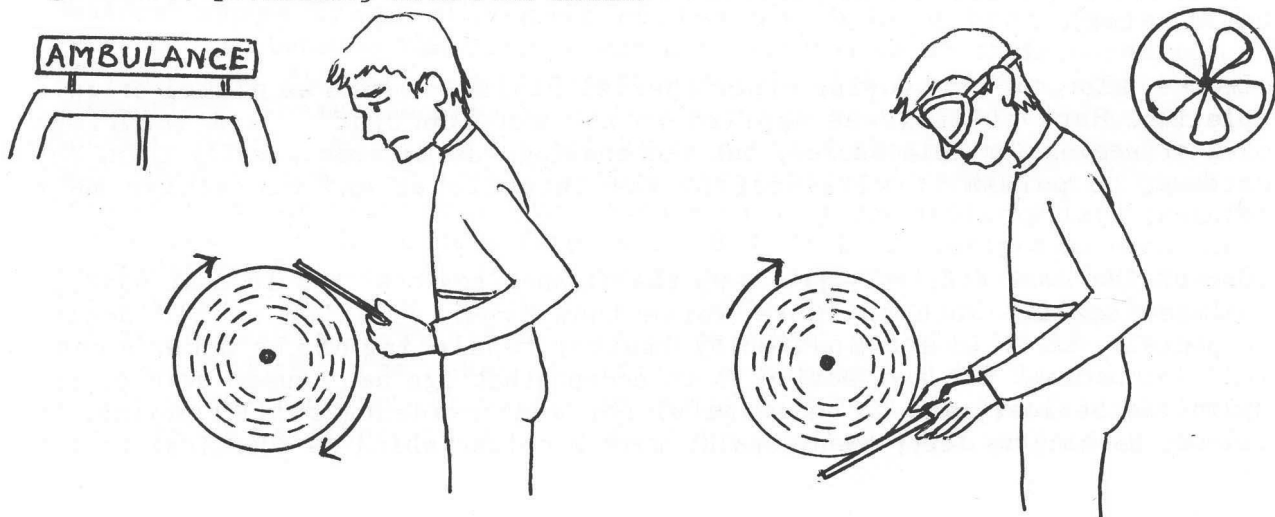
In the list of materials, proprietary brand names are for England, and a few are for America. Readers in other countries will have to find their national equivalent from the descriptions given.

Methods

BUFFING WHEEL

The wheel produces a fine dust in the atmosphere which should not be inhaled. If you do not have an extractor fan, use a face-mask. If you do not wish to risk blindness, wear industrial goggles. Do not wear loose clothes and especially do not wear loose sleeves, as it is extremely easy to get caught or pulled against the machine. A machine which merely polishes brass will remove your flesh or break your bones.

Have the wheel turning over the top towards you. The buffing wheel is dangerous if you put the object in the wrong place on the wheel. If you put it above the horizontal, on the leading edge, you could be badly injured. Have the object below the horizontal, on the trailing edge, so that if it is flicked out of your hand, it flies away from you under the machine. Deal with one single piece of metal at a time, as it is so easy for the machine to pick up a secondary bit in an unguarded moment and twist or distort the pieces beyond use. Hold the one piece as firmly as possible, preferably with both hands.



Learn the art of polishing on some scrap brass, testing your skill on flat surfaces, cylinders and on holey brass. This may save you from ruining a part of your collection. Do not approach your favourite scale until you have had plenty of practice.

If you are a beginner, start learning with a four inch (100 mm.) diameter wheel, as you are likely to slow the wheel inadvertently by pressing too hard and you don't want to over-load the motor.

If you are using an electric motor on a stand, use 6" (150 mm.) diameter calico wheels. If you use a bigger diameter wheel, you risk a fire in the motor.

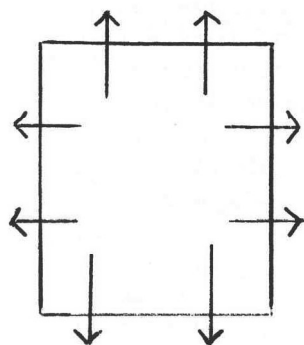
If you have a proper polishing motor, buy 8" (200 mm.) diameter calico wheels, but not thicker than 1/2" (12 mm.) as again, you could press too hard and slow the motor, risking a fire.

For crude polishing use a stitched calico wheel with coarse 'soap', always dark brown in Britain.

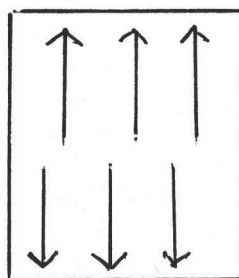
For fine polishing, use an unstitched calico wheel with fine 'soap' or jewellers' rouge, always dark red in Britain. Do not mix the soaps or put the wrong one on the wrong wheel, as either event would produce a nasty finish on your brass.

Always buff off the edge of any flat surface and always hold the surface to be polished at 90° to the radius of the wheel. As with all polishing, keep the line of the final polishing going in one direction. Do not turn the object to a new angle.

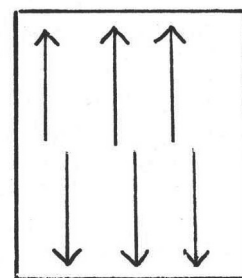
1st. buff



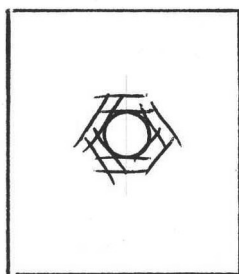
2nd. buff



3rd. buff,
jewellers' rouge

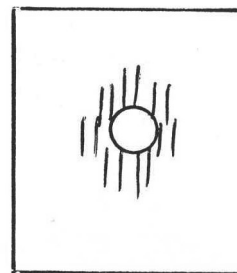


If there are holes in the surface (as, for example, on the letter plate or in the A frame of a roberval) be very cautious. Go gently around the hole with short strokes to remove the thicker oxidation then polish in one direction with short strokes. If you drag the calico wheel over a hole in one direction until it is shiny, you will finish up with an oval hole, and also risk the object being flicked away.

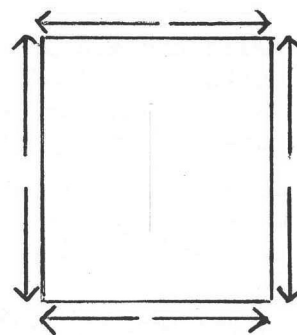


1st. buff

2nd. buff



Edges



Edges have to be cleaned away from the middle of each edge, towards the corner, gently.

Remember that all polishing reduces the depth of engraving, so try to avoid doing it more than once while it is in your possession. Polish once, then lacquer thoroughly.

Small, thin, sharp-edged or spiky objects can easily be caught or damaged by a buffing wheel. I strongly recommend that these are polished by hand.

LIQUID CHEMICAL CLEANERS

These cleaners do not require any hard physical effort on your part, as they rely on virulent chemicals to do the work. They may be sold to you as 'polish' but read the instructions before you buy, and take care that you are not misled. The antiques trade call them 'pickle', probably because the old chemical used was any pickle based on vinegar and/or lemon juice- which can act as viciously as any modern chemical and is usually readily available- quite apart from smelling extraordinary in use.

BRASS: chemical cleaners can be very useful at times, if used with discretion. However, the chemical action affects all parts equally and, if allowed to act for too long, the brass will appear absolutely new. So, be warned, use chemical cleaners to soften the oxidation and remove the worst accretion, but take the object out of the pickle frequently, and clean it with a toothbrush in running water. Have a good look at the encrustation, try rubbing it off with abrasive paper and only put it back in the pickle if you have made no impression with the abrasive paper. Stop pickling as soon as the object is merely dirty and polish the rest of the oxidation off manually.

Be careful and patient- if you try to hurry or expect the chemical to do the work for you, you may ruin the looks of a valuable antique permanently by cleaning out the corners that subconsciously tell you that it is old, or you may finish up with a copper surface which looks revolting and is extremely difficult to deal with.

Try to avoid chemicals altogether, but if you insist on using them, remember the adage 'clean to the standard of a good housewife'.

People will try to convince you that you do no harm using salt, lemon juice, vinegar, rhubarb pulp, on the grounds that grandmother used them- but she was not trying to preserve objects in the long term, nor did she care if she rubbed off makers marks. She was in a hurry to get gasps of admiration from other houseproud ladies, would probably like an excuse to

have a new candlestick, and liked it to be known that she had an old family recipe for cleaning her brass. She was not a historian and was shocked by discolouration or dirt in any corner she could see. Do not imitate her- rather imitate her grand-daughter who dashes round giving things a lick and a promise.

BIOLOGICAL RUST REMOVERS:

These chemicals have to be kept in a refrigerator, they are called bio-degradable, the chemical may be used many times, over many months without the chemical deteriorating, and claim to be harmless to paint, wood, stone, chrome, textiles, polyvinylchloride, rubber or metals.

Biological rust removers also affect all parts equally, so use them with care. They are ideal for eliminating rust when the object is to be re-painted. On parts which have to remain in their natural state, any rust pitting will form small holes in the surface and they will be clean from the action of the chemicals- a very unreal appearance. Slight greying of the surface, due to the chemicals, can be removed by polishing.

Personally, I use these chemicals with the greatest discretion, and only very occasionally.

RUST KILLERS

Rust killers act in a different way from the biological rust removers. They convert the rust from an active oxide to an inactive substance, usually blue-black in colour, BUT the material is not removed, as it is with the bio-chemicals.

Buy these killers at a car-repair shop, and follow the manufacturers' instructions.

AGEING, BLACKING, OR PATINATION

These methods are used to disguise the repaired parts on scales, to restore the aged look on over-cleaned objects and to put back the chemical darkening on patinated brass. Do not expect the results to be as smooth and even as the original finish. Do not expect an identical colour and be prepared to have several attempts before you are reasonably satisfied.

Buy blacking, browning and blueing from a gun-smiths' suppliers, and try to obtain more than one make of each colour to give a choice of colour and tone. Because the underlying brass varies so much, you will need to experiment to get the finish you desire.

Firstly, put on rubber gloves and turn on your extractor fan, or open the door and the windows to give a thorough through-draught. Clean the brass with white spirit or an electrical circuitry cleaner. Brush on the chemical browning for the recommended period. If it fails to darken, try re-cleaning and warming (but not heating) the brass then applying the browning again. If this fails, try another manufacturers' browning, or try blacking or blueing instead. The final colour may not be that mentioned on the bottle. If a white deposit forms after the recommended leaving-

period, brush it off with a soft brass wire brush very gently.

As with gilding, silvering, nickeling etc. you have the thinnest possible layer of colour and it is advisable to protect the finish with lacquer.

POLISHING WITH LIQUID ABRASIVE POLISH

Wrap a single layer of rag round your finger and dip it into the polish; rub in the normal way and finally buff with a soft clean rag. This method is suitable for large flat areas, or large concave or convex areas such as scale pans.

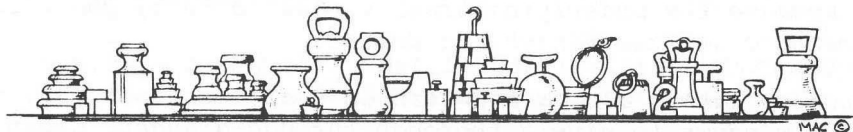
Where small flat areas or small curved pieces are to be cleaned, wrap a single layer of rag around a suitably shaped stick, and carefully rub in alignment with the surface. Any tipping of your rubbing action will destroy the corners and make them rounded for ever- a sure way to destroy a crisp sculptured shape.

For very intricate shapes, embossed or incuse decoration, use an old toothbrush dipped into the polish. Remember to work gently, and leave some of the patina in the hollows. This not only shows the age, but it also delineates and enhances the shapes.

To prevent the unsightly white deposit from the polish accumulating in the corners, wash the brass in warm water with a little mild dish-washing detergent, scrubbing gently with another old toothbrush. Rinse in clean water. Remove the water with a towel and dry off in a warm atmosphere- a clothes-airing cupboard is ideal.

PLEASE DO NOT START TO APPLY THIS ADVICE UNTIL YOU HAVE READ THE SECOND PART OF THIS LECTURE - THERE ARE VARIOUS 'DO NOTS' WHICH ARE ESSENTIAL FOR YOU TO KNOW BEFORE YOU TOUCH YOUR SCALES!

Michael Crawforth gave this lecture at the 1988 Convention of ISASC in Boston. He prepared the main section of the paper for EQM but left only his lecture notes on Methods and Materials. The editor used these notes, but needed extensive help from Andrew Crawforth to amplify and explain many points that Michael had abbreviated to one or two words. Without this highly professional help from Andrew much of Michael's knowledge would have been lost for ever.



Corrections to Issue no. 4, 1988;-

Johannes Lindner wrote to say that line 6 of page 1179 should read Patent 1979 in 1853 (not 1978). Line 12 of page 1179 should read "Definitely" rather than "Presumably."

Apologies from the editor.

Dearborn's Gold Standard Balance

DIANA CRAWFORTH



Benjamin Dearborn first made this balance in 1802, for use in banks in the United States. He expected the bank to provide the glass screens to protect the mechanism from draughts, but he made the assumption that they would not glaze the top; obviously he did not consider dust a hinderance to the mechanism.

The beautiful oval base with its fine inlay was presumably specially made as a prestigious item for Harvard University. The Directions for Use are signed by H. Plympton, successor to Benjamin Dearborn, in 1828. Plympton may have supplied the balance, and organised the making of the ornate base, but the beam is signed by Dearborn and must be considered the work of the earlier man. Plympton has altered the wording of the Directions, implying that he did expect the top to be glazed, and a sash door to be fitted to the front, on his normal production, although that was not possible on this special model.

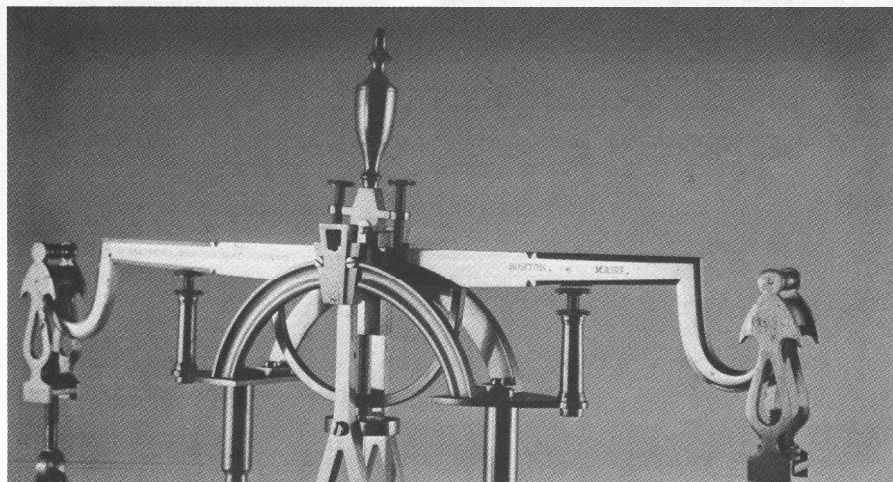


Fig. 2.

Fig. 2. The beam is signed "B. DEARBORN'S GOLD STANDARD BALANCE....BOSTON MASS." The equipoise shows clearly, directly below the decorative urn finial, as can the two screws which adjust the equipoise:- the right-hand screw is considerably higher than one would expect it to be. Because the lever lift is not pressed down, the beam is resting on the screws attached to the plates on the top of each column. Resting prevents wear on the central pivot point. The open box ends show clearly, made on the same construction principle as on large trade scales of the period, but so attractively shaped that they take on a character far beyond the purely functional. Dearborn used flat-headed screws to attach all parts together;- an eminently sensible precaution when the balance was to be used by many different users in the bank, not all of whom would be careful, and who might damage a part of the balance.

Collectors familiar with Thomas Charles Robinson's precision balances may associate the delicate four-way split in the central pillar with Robinson's work. However, credit for this practical and elegant way of protecting the pointer while giving a clear sight of it, must go to Dearborn, as Dearborn made his design in 1802 whereas Robinson only started designing in 1823.(see page 1215)

The similarity of the designs of Dearborn and those of Howard and Davis must give rise to speculation as to the successor to Plympton. Note the use of the same adjustment by the equipoise; the same principle of weighting the pointer; the same design of lever lift; the identical beam ends. Can this be coincidence? Howard and Davis also worked in Boston,

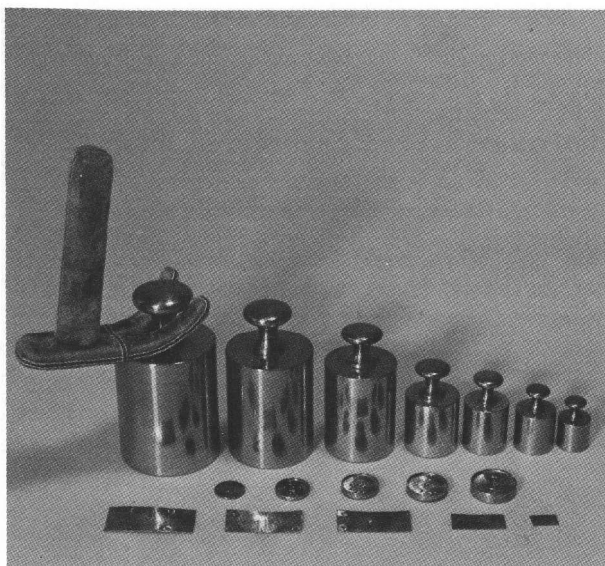


Fig. 3 & 4. The weights were stored in a fitted box, beautifully lined with velvet to prevent wear by one weight on another. The velvet-covered claw was extremely easy to manipulate, and prevented acidic secretions from the users' skin corroding the surface of the weights. (The author has never seen a velvet-covered claw with any other set of weights.) The grain weights were conventionally marked with little circles to denote the units.

Massachusetts, so research needs to be done to ascertain the connections between the two firms. (see page 1216)

The precision of the whole design is astonishing to people who are familiar with precision balances of the early 19th century. The scientists were still tolerating scales with no fine adjustment for the balance of the beam, no fine tuning on the pointer to give stability when appropriate, no relief to the bearings between weighings, and rarely any protection from draughts. Benjamin Dearborn was a man ahead of his time, anticipating the means of curing these problems and producing a fantastically handsome balance as a by-product of good design practice.

The author thanks Harvard University for providing the facilities to photograph this scale and for giving a copy of the 1828 document. Owing to the dilapidated condition of the document, it had to be transcribed for EQM.

DIRECTIONS FOR USING
The Gold Standard Balance,
Invented by BENJAMIN DEARBORN, of Boston, Massachusetts,

The beam is mounted on a platform having a screw at each corner, for the purpose of fixing it perfectly level and steady; and care should be taken that it be always so placed, which can be readily ascertained by applying a plumb-line to the columns, because they will be perpendicular when the platform is level.

On the platform a lever (with an ivory handle) is placed, whereby the beam, scales (pans) and weights are raised for any operation in weighing, and let down as soon as the operation is completed. It is best to bring the beam to a state of rest, as often as any change is necessary in the weights, or the article to be weighed; it should also be kept in a state of rest at all times when not in actual use. When a beam is constructed to rest on screws, they should not be moved after being fixed at their proper height, which is thus known. If the screws be too high the beam will roll thereon, producing a lateral motion of the index between the parallels; if the screws be too low, the beam will not come down to rest on both at the same time; if one be too high and the other too low, the index will rest out of the centre, inclining toward the highest screw; when none of these effects are produced, the screws are at the proper height.

The index (pointer) is fixed with a brace to the lower edge of the beam, pointing down to a centre, which shews when the beam is level. A small weight is fixed upon the index in such a manner as to be moved higher or lower, and remain stationary wherever it is placed; this weight is termed a MOTOR, the proper place for which is easily ascertained thus; when the scales are adjusted to exactly equal weight, while the beam remains up, put each scale alternately down to the table, and observe if they rise, letting the beam vibrate; if they do not, the motor is too high, and must be brought lower; if they rise with a quick motion, the motor is too low,

and must be moved higher, until the scales will just rise from the table with a slow motion; this will be the proper place for the motor in weighing all small drafts, and with any draft the beam will turn with great ease, without raising the motor, consequently it very rarely requires to be moved. But, if the scales are heavily loaded and *extreme precision is required* in the weight, the motor may be raised as high as it will bear, by the foregoing rule; that is to say, after the scales are loaded with equal weights, raise the motor so high that the scales with their load shall just rise from the table, the beam vibrating with a slow motion. Whenever the motor is moved the beam should be in a state of rest. Beams of this construction are thus made to turn with nearly the same ease when heavily as when lightly loaded.

To preserve the exact balance of the beam, an instrument called an Equipoise is fixed on the top of it, turning on an axis, and moved by two screws, which throw the weight of the equipoise toward the right or left, for counteracting such little inequality in the weight of the scales as may be produced in time, by a difference in wearing, or by more dust adhering to one than the other. If the beam from these causes, should at any time lose its perfect equilibrium, it must be restored by slacking the screw of the equipoise on the side of the lighter scale, and turning up the other. This should be done while the beam is at rest, and the screws must be turned tight, to preserve the position of the equipoise when set. The ends of the beam terminate in sharp edges turning upward, by which construction it is very easily corrected if the edges should wear dull in time, or if one arm should prove longer than the other, which is ascertained by changing equal weights in the scales after they have been very accurately balanced by the equipoise. If one arm be longer than the other, an oil stone must be applied to the outer side of the edge on the longer arm, or to the inner side of the edge on the shorter arm, and a little rubbing will shorten the former, or lengthen the latter; but care must be taken not to do too much, for when the arms are very nearly equal in length, the longer may be made the shorter by rubbing a few seconds, although the edges are hardened steel.

On the ends of the beam, two Pendants are suspended having polished steel caps, which rest on the sharp edges above described. To these pendants the scales are attached by screws, whereby the length of each can be so increased or diminished, as that the index shall be central when the scales rise from the table.

The pendants are marked R. and L. to represent right and left, with those letters facing the operator. As the beam is originally adjusted with the pendants in those positions, it will be expedient to avoid changing them in use, although no perceptible difference may be produced by the change. Whenever the beam is to be raised or let down, the operator should be particularly cautious to prevent the lever from slipping out of his hand, for a single inattention in this particular, may destroy the accuracy of the instrument; and it is so extremely susceptible that the lightest current of air will give it motion; consequently a case should encompass it on all sides ~~but one, which must remain open for using it.~~ This case is generally glazed ~~except on the top~~ (on four sides & sash door*.)

* (ruled out by hand and the words in parenthesis written in by Plympton.)

Four different denominations of this Balance have been introduced, namely the first or higher style, for weighing gold to the amount of five thousand dollars at a draft. The second style of similar power. The first style for fifteen hundred dollars at a draft, and the second style of similar power; any one of which will weigh a single piece with requisite precision.

Weights for gold are also furnished at the same factory, adjusted to pennyweights and grains, or to dollars and cents of the different gold coins, as estimated by the laws of the United States.

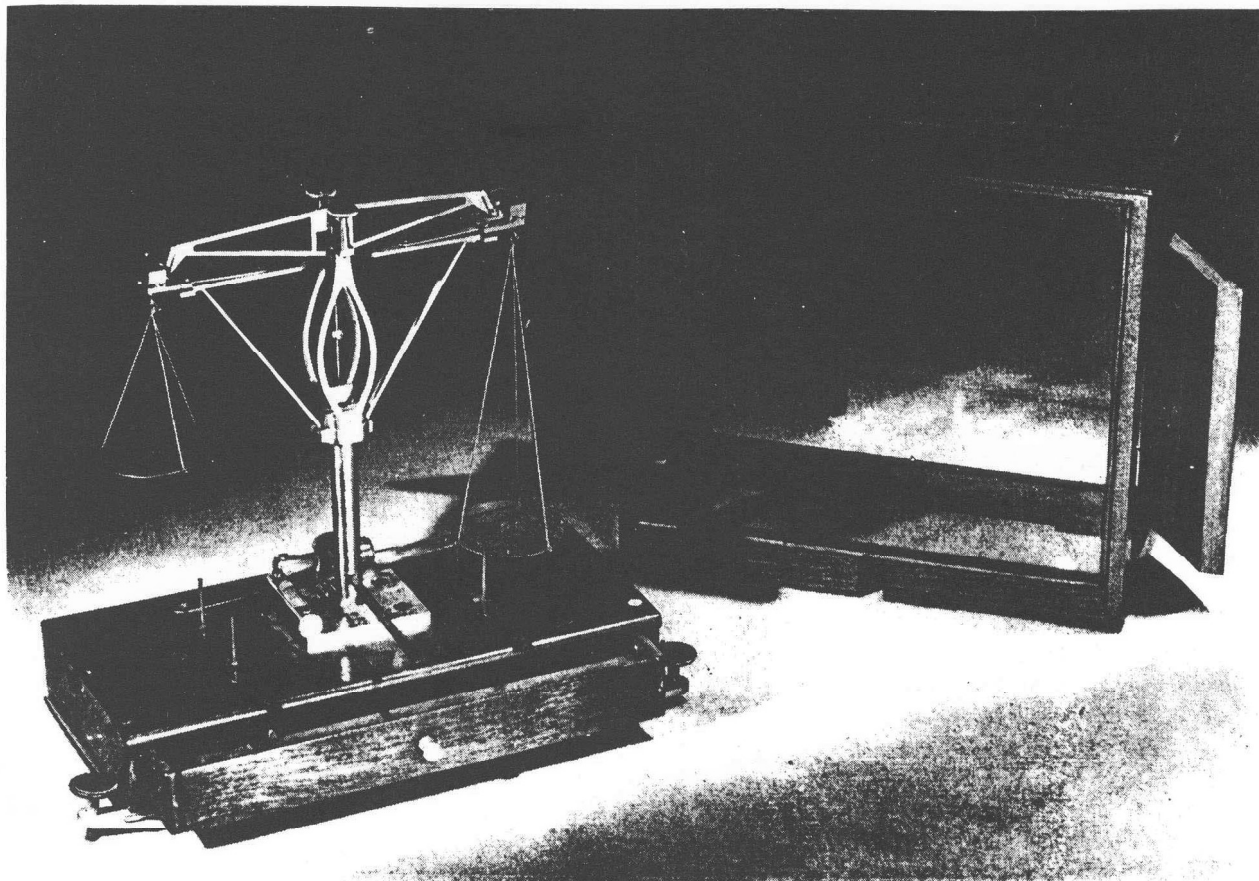
The Gold Standard Balance has now survived the scrutiny of fifteen years, in which time it has been adopted by all the Banks in Boston, and many others in the United States; the Inventor therefore feels himself justified in recommending it to all Banking Institutions wherein superior accuracy is an object of ambition.

BENJAMIN DEARBORN,

Balance Factory.

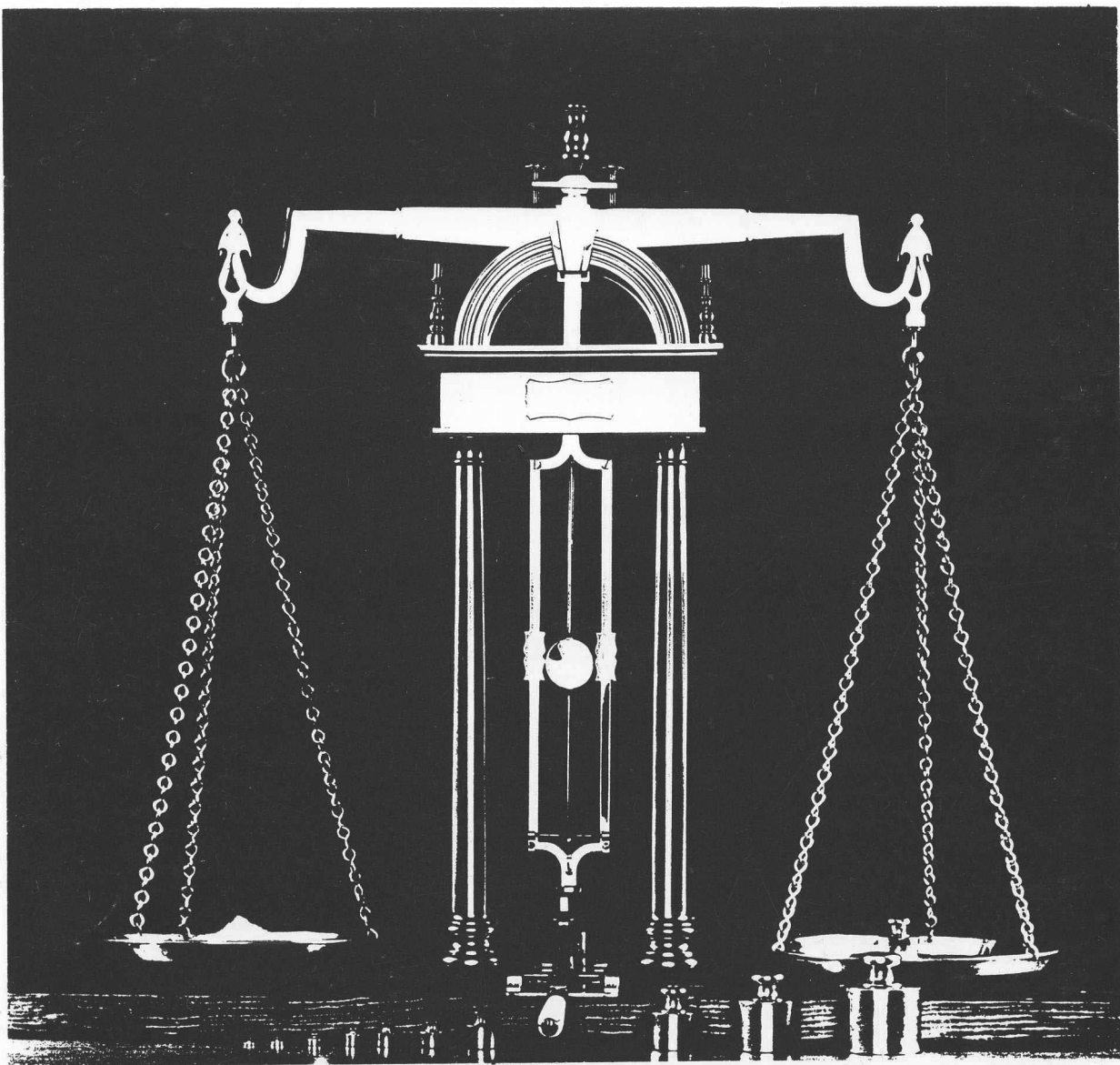
Boston, Nov. 1817.

(signed in manuscript)...H. Plympton successor,
Boston Quay. 1. 1828



Whipple Science Museum Cambridge, G.B.

T.C.Robinson made precision balances, a few of which have survived. Although no two are identical, they share many features in common, and several show the four-way split in the central pillar. Strangely, the curvature on each is different, some being more elegant than others, and proving that each was hand-cut without a template.



Howard and Davis of Boston, Massachusetts, U.S.A, were primarily makers of banjo-shaped clocks, but they also made scales for the United States Post Office and made bullion scales of magnificent proportions. The Spanish Peak Mining Company of Plumas County, California owned this beauty originally. The Wells, Fargo and Company Express of Columbia, California owned a huge Bullion scale of the same design, as did the San Francisco Mint. Seeing that Howard and Davis for the first time was exhilarating, as it gleamed triumphantly in the window of the Mint, easily drawing the eye away from the 50,000,000 dollars worth of gold ingots on display on the other side of the room.

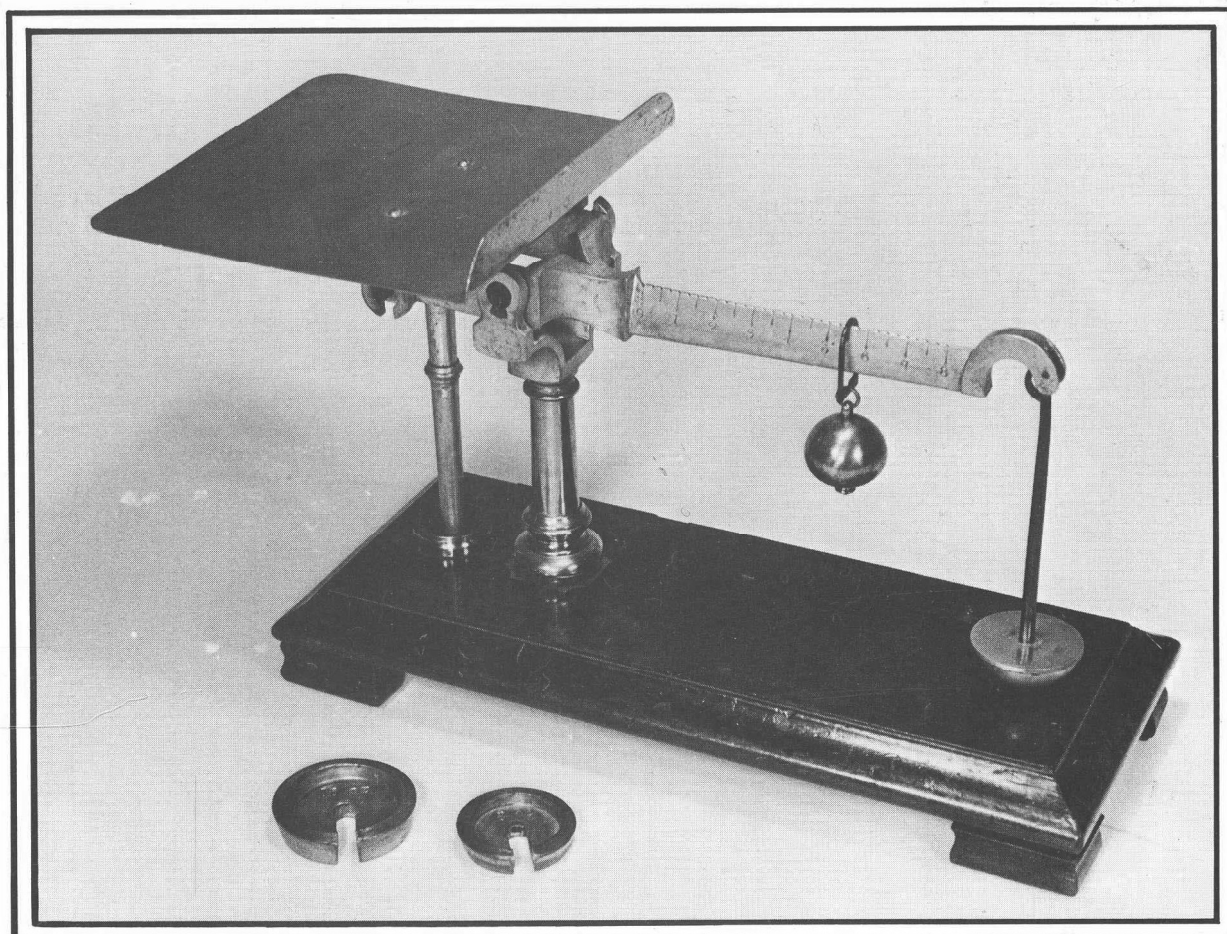


EQUILIBRIUM

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

1989 ISSUE NO. 2

PAGES 1217-1244



PAGE 1218

Cover Picture

This handsome scale was for use in the office or study of the professional man. It was unusually large for a letter balance, being 12 inches long and 8 inches high, (300mm. by 200mm.) It was a half-roberval linked to a loose weight steelyard, with 0 - 8 ounces on the beam, 8 ounces on the small loose weight and 16 ounces on the larger loose weight, giving a 32 ounce capacity. No search has been made at the Public Records Office to ascertain the date of its design registration, referred to by W & T Avery in their 1880 catalogue:-

Registered design letter balance

Brass balance on mahogany slab, weighing up to 4 oz. by $\frac{1}{4}$ oz. divisions on lever arm. To weigh 16 oz. 20/- ; 32 oz. 24/-.
(Registering the design gave the firm legal protection against plagiarism for four years.)

Editor's Comment

The design registration system is mentioned many times in this issue of EQM. It was a service set up by the Board of Trade in 1839 to give legal protection to the manufacturers of products which did not qualify for Patent protection, but which used some material or incorporated some design which was unique. By paying a fee, the manufacturer could get protection for four years. The numbering system was re-started twice, then the Board of Trade changed the system to the Diamond design, which incorporated a code for the date of registration, and eliminated the need for re-starting the numbering when the number got too long. In 1875 the Board of Trade decided to change to the Trade Mark system, and seems to have done so in 1879.

INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

Founded September, 1976

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Pop it in the Post

Part 1

The British Postal System, 1640 - 1988

D F Crawforth

This talk was given at the ISASC Convention held in Boston, USA in 1988.

Originally letters and dispatches were sent by governments on exclusively government business, sent by merchants using their own servants or other merchants' servants, or sent by rich men. There was no Postal Service taking letters for a fee, and no citizen had any right to send communications; our Monarchs were highly suspicious of anybody who wanted to write a letter. If a citizen wrote a letter he must be hatching a plot- why else would he want to write to anyone? The nervousness of the English, that the Roman Catholics would remove the Protestant monarch, was a very strong fear from the beginning of Elizabeth's reign in 1558 until the death of the people who remembered the Uprising of 1745. Luckily, the English did not have to wait until all suspicious people died to get a postal service, but the discrete use of censors to read private letters did continue until the alarm aroused by the French Revolution calmed down in about 1840. (Even Benjamin Franklin, Deputy Postmaster General of America, had his letters read by censors when he was in England.)

Ordinary people could write and send a letter from 1640 onwards, at an enormous cost (2d. per sheet going not more than 80 miles, 4d. up to 140 miles, 6d. up to 300 miles and 8d. to Scotland) as long as the writer and the recipient lived either in London or on one of the six major routes out of London served by the Post Office. After 1637 turmoil between King Charles I and his reluctant Parliamentary subjects closed down the service. The Cromwellians tried to set up a proper system, which was very useful when it was working, and producing profits of £15,000 a year for the organiser, it was rumoured! (And that was after he had carried all government letters free of charge.) Certainly a lot of people were prepared to send letters at those exorbitant rates and profits must have been vast, as important men were keen to offer huge sums of money to obtain the job of organising and farming the Posts.

To get down to the realities of posting a letter in the 17th century, suppose you were an ordinary parent living in 1658 in Portsmouth and you wanted to write a letter to your son who was apprenticed in London. You bought a single sheet of paper, folded it into three one way, then three the other way, tucking the outer corner under the stiff folded corner, marked the surfaces that would form the cover then unfolded the paper and wrote closely on all the other surfaces. You refolded your letter, put a blob

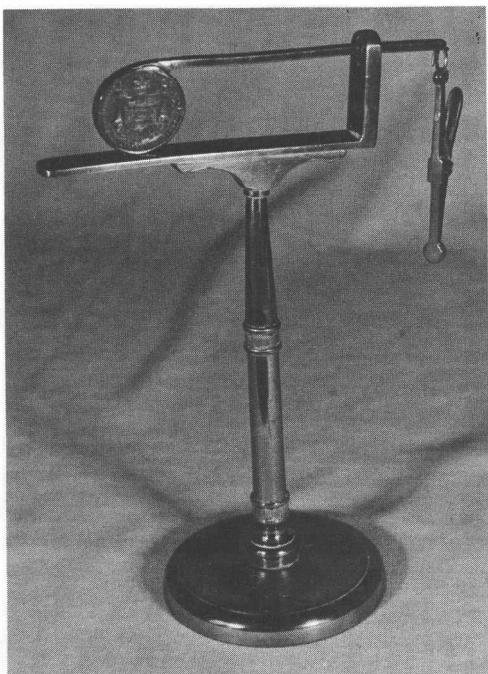


Fig 1.

Fig 3.

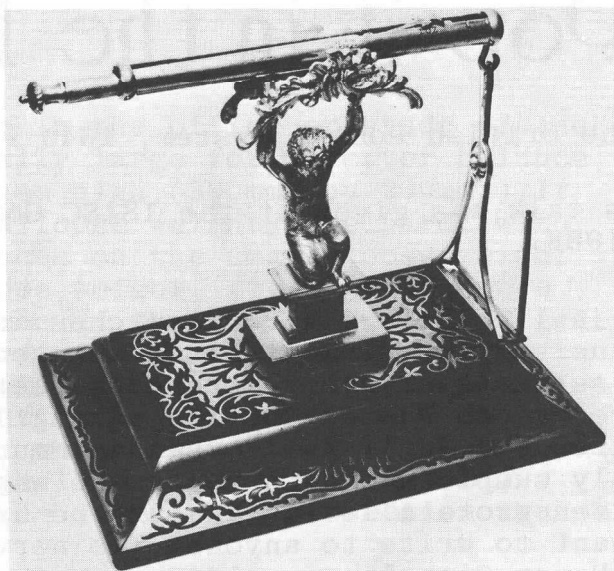
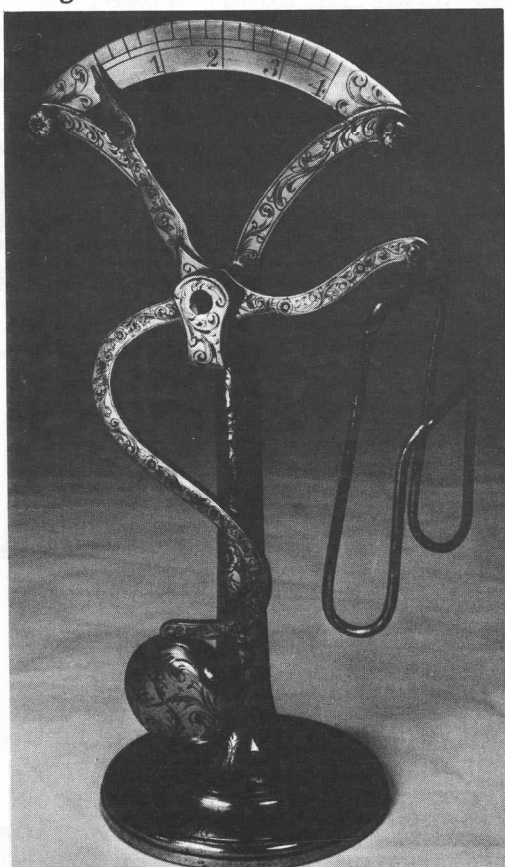


Fig 2.

Fig 1. Bismar, $4\frac{1}{2}$ " (110mm.) beam. 'The Post Office Letter Weight, Registered No. 1. Pursuant to 2 Vic. Ch 17, For H Hooper, 12 Aug 1839. For Rowland Hill's Plan of Penny Postage.' Beam marked $\frac{1}{2}, 1, 2, 4$ (oz.)

Fig 2. Telescopic steelyard supported by a boy holding a scroll of foliage. Base covered with buhl, a veneer of tortoise-shell and brass, difficult to cut and expensive to buy. Steelyard case $5\frac{1}{4}$ " long (125mm.) & marked $\frac{1}{4}, \frac{1}{2}, 1\text{oz}, 2\text{oz}, 3\text{oz}, 4\text{oz}$. Pedestal stamped 'H B Wright, No 130, London. Dec. 20 1839.'

Fig 3. Pendulum, engraved with flowers & foliage, & gilded all over. Quadrant marked 0, 1, 2, 3, 4 (oz.) Height $7\frac{1}{2}$ " (190mm.) The black patinated version has 'No 113, Nov 28 1839, G Riddle, London' on the weight arm, & has a silver quadrant.

These three scales pre-date the Penny-Post, all being registered at the Office of Design Registrations in 1839, with a drawing & an explanation. The name and address of each registrant is given on the same sheet of paper, & is a rewarding source of knowledge for historians.

of sealing wax over the junction of the surfaces and pressed your wet seal or similar metal object onto the hot wax. You wrote your son's name on the other side, such address as you could remember (perhaps only a street name and "London") decided not to send it with your neighbour who was going by coach to the nearest big town, Salisbury, 50 miles away, but to take it to the Post Office in Salisbury yourself next time you went. The Post-master checked that you had only used one sheet of paper by putting your letter next to a candle flame to see whether you had enclosed anything- if you had, he would have charged you double fees. He tied a ribbon round your letter with a label on it. He wrote on the label which day you brought it in, the price to be paid by your son (after arguing as to whether Salisbury was under or over 80 miles from London- no accurate surveys having been taken) and that it was being carried from Salisbury. If you had written several sheets, he would have weighed the letter and charged you 8d. per ounce. (No-one recorded what sort of scales were used, but they were presumably coin scales with equal arms, being the right size and suitably accurate.)

The Post-master put it in his mail-bag and told you that it would go with the next Post-boy travelling up the A30 to London. If it was winter, the letter might wait five or six days before it went, but perhaps only wait three days in summer. The Post-boy came on his horse and his bag of letters from Cornwall, changed his horse, collected your letter and any others, and rode on with his local guide towards London. If the next Post-master along the A30 did not provide a fresh horse within thirty minutes of his arrival, he could commandeer any horse he wanted, even one out of a carriage or from a plough, to make it possible to continue his journey. He got a fresh local guide and rode on. With rests, he took about eleven hours to get to London in summertime, approximately sixteen hours in good wintery conditions or up to forty hours if conditions were poor.

Your letter was handed into the London Post-office and looked at by the Post-master's servants. If they thought that it might be from somebody whose political affiliations were suspect, that it was rather thick and might contain something, or that it looked unusual, it was passed to the inner room. That night, behind locked doors, the Censor would carefully undo your letter, read it, copy out suspicious bits and re-seal it as carefully as possible. It was then put into the post again, pigeon-holed for your son to collect next time he popped into the Post-office to see whether he had received any mail, and handed to him when he had managed to raise the money to pay for it. He had to struggle with many of the half-million people living in London who were all served by the one Post-office, and no doubt he was praying that it was going to be worth all that money when he read what you had said.

Suppose, alternatively, that you were living in London in 1670 and you wanted a merchant to send you some goods from the other side of

London. The only way you could contact him was to walk across London as far as the river Thames, cross by ferry boat and walk to the merchant's premises, or send a servant with a message; a very time-consuming business.

However, after 1680, you could pop into a Penny Post-office on your nearest main road, pay a penny, and send off a parcel of up to 1lb. in weight. (Again, nobody recorded what sort of scales were used, but any small trade scale, either equal-arm or steelyard, could have been used.) The parcel was guaranteed to arrive the same day within the London area; your reply or payment might get back to the sender the same day too. The London Penny Post was a private business set up to supplement the General Post that was run by the Government. It was only taken over by the Government in 1711, but it was kept as an entirely separate Department, with a separate accounting system from that of the General Post and the two systems were only amalgamated in 1840. Throughout its existence, heavy letters were weighed to make sure that they were under 1lb.

If you addressed the letter to a private person, rather than a merchant, then your letter would be pigeon-holed at the nearest Penny Post-office to your friend's home, and he would regularly check or send a servant to check as to whether he had received any post; a bit of a nuisance, but a lot better than struggling up to ten miles across the most congested city in the world.

If you had family in the Colonies in 1680 you could send a letter by the Post; one shilling as far as New York and additional money to other places in America- to Boston it would cost another shilling. That is the equivalent today of paying thirty dollars for each leg of the journey- 60 dollars to be paid by the recipient. I hope the single sheet of paper was well-packed with news. Is any news worth 60 dollars when it could be years out of date?

By 1756, letters were sent to most towns in England and most people lived within seven miles of a Post-office. In Wales, most people were within fifty miles of a Post-office, but in Scotland and Ireland many people were 120 miles from a Post-office. Guess who wrote the most letters!

By 1760 ten million newspapers a year were being sent by post, because the government imposed a 2d. tax at point of sale, then allowed any newspaper to travel by the Postal system without further charge. Naturally people took full advantage of this 'perk', but it imposed a heavy burden on the Post-boys.

By 1784 you might send a letter from Cornwall to Aberdeen by the new Mail Coach, which was relatively rapid as all other road users had to give way to it, in the same way that we do nowadays to an ambulance or fire-engine. Road surfacing was also much improved and the coaches bowled along with the bugler warning every other vehicle and herd of cows to get out of the way, and the guard brandishing his official blunderbuss at any foot-pad or highway-

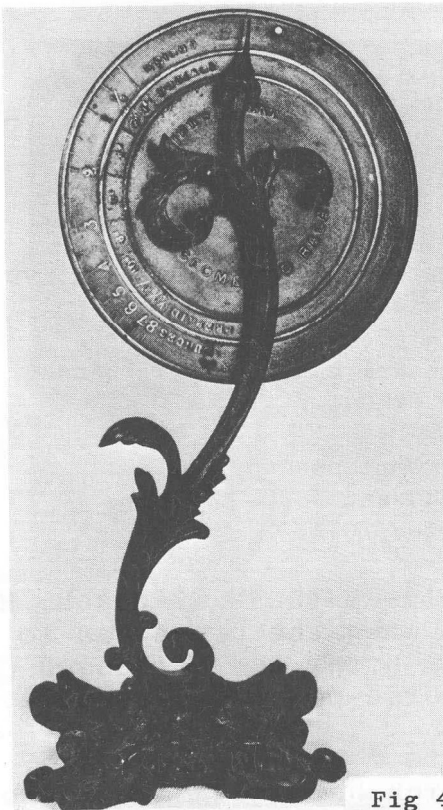


Fig 4.

Fig 4. Circular pendulum (with weight & letter hanger missing,) designed & patented by C E Dampier, a lawyer, in Jan 14 1840. The 'Geometric Balance', so called because the graduations were ascertained by mathematical calculation of the force applied by the letter to the weight. Stamped $\frac{1}{2}$, 1, 2, 3, 4, 5, 6, 7, 8 ounces & 1, 2, 3, up to $\frac{1}{4}$ Prepaid.

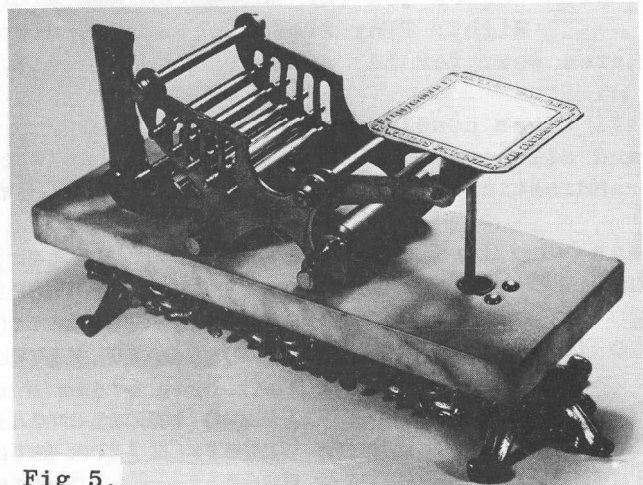


Fig 5.

Fig 5. Weight-collecting scale of brass & marble, with 5 weights of rolling-pin shape, each graduated in mass to allow for the distance of the weight from the central pivot point. The first weight is picked up when a $\frac{1}{2}$ oz. letter is put on the plate & the beam moves up next to 1 on the Pence 'chart' on the left. The second weight is picked up when a 1 oz. letter is put on the plate & the beam moves further up next to 2 (pence) & so on. If the letter weighs more than 5 oz. the spare 'rolling-pin' is put in to the slot in the beam manually, the scale is turned round & the pence read off on the other side of the Pence 'chart'. Patented by R Willis, a Professor at Cambridge University, 12 Feb 1840. Manufactured by Josh. & Edmd. Ratcliff, St. Paul's Square, Birm. Three designs are known, using 3, 5 & 7 weights, with mahogany or marble bases. The 5 weight version is 10" long (250mm.)



Fig 6.

For the patents & comments on figs 4 & 5 see EQM page 398.

Fig 6. Left: ebony-based brass 'candlestick' scale, gilded. Stamped R W Winfield, Birmingham round the base of the tube. Rates $\frac{1}{2}$ oz. for 1d. up to 4oz. for 8d. $6\frac{3}{4}$ " high (170mm.)

Left central: ivory candle stick, delicately ornamented with turned whorls. Stamped W I E Rooke underneath. Rates $\frac{1}{2}$ oz for 1d. up to 4oz. for 8d. 6" high (15mm.)

Right central: Thin stamped brass, with patinated graduation plate. Anonymous. Ornamented with three scenes, a paddlesteamer, a steam locomotive and a cluster of agricultural tools and produce between overflowing cornucopias. Rates $\frac{1}{2}$ oz for 1d. up to 8oz. for 16d. 9" high (230mm.)

Right: Tiny stamped brass candlestick, signed J & E Ratcliff, B'ham. Rates $\frac{1}{2}$ oz. for 1d. and 1oz. for 2d. only. $4\frac{1}{2}$ " high (110mm.)

All these candlesticks contain a spring which is compressed by the letter, and all have the postage rates for use between 1840 and 1865. Only one candlestick has been seen for the rate for use after 1871.

man who had the temerity to attempt to hold-up the Mail-coach. He had to be particularly vigilant on hills, when the coach had to go up slowly, even when an additional cock-horse was harnessed to the front of the coach to give added horse-power up the hill.

By 1792 the highway-men were even keener to rob the Mail-coach, because the Money Order Office started, which handled Money letters. These letters had special handling because they were permitted to contain coins, jewellery and other small valuables, yet were only charged at double the price for a single sheet of paper.

I say 'only double', as if that was a small sum of money, but in reality it was a very large sum of money, and extremely profitable to the government. They looked on the Post-office as a source of revenue, not as a service to the people, and kept raising prices to pay for wars or top peoples' pensions, without considering that they might have received a greater income if prices had been lower. In 1797 a single sheet going less than 15 miles cost 3d., going 15-30 miles 4d., going 30-60 miles 5d., and up to 8d. for the journey from London to Edinburgh.(373 miles.)

In 1801 prices became even more exorbitant, with a letter to Edinburgh from London costing one shilling, 12d. which is the equivalent of paying £9 or \$16 today. The government raised the Penny Post which covered central London to a two-penny rate and the London suburban rate to 3d.

Letters continued to be the prerogative of the wealthier members of society, with yet another rise in the rate, of an extra penny, so that a single sheet of paper going less than 15 miles cost 4d., that being about £3 or \$5 today. Evasion of payment was a very severe problem to the government;- letters were tucked into newspapers, or initialled (franked) by the privileged few who worked for the government or were Members of Parliament and had the right to send letters free of charge. As this rise came only four



Fig 7.

Fig 7 has an iron weight holding the letter plate down.

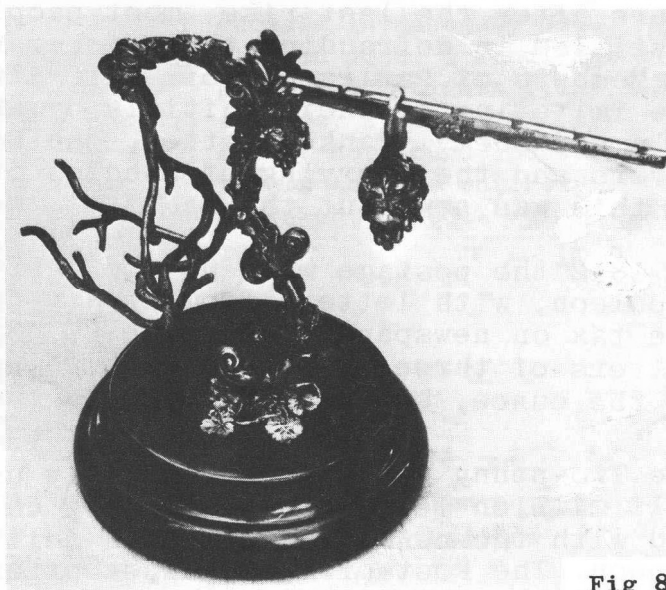


Fig 8.

Permission W & T Avery

Fig 7. Brass half-roberval & pendulum. Maker's mark under the base, a shield with a man's head facing left & P St. & Co. (Unidentified.) Quadrant stamped 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, $3\frac{1}{2}$, $4\frac{1}{2}$, 5oz. Ornamented with sea-monsters, caryatids, a man's face, foliage & lion's paw feet. $7\frac{3}{4}$ " high (195mm.)

Fig 8. Steelyard. Gilded brass on an ebony base. Beam graduated $\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 3, 4, 5oz. One of many highly ornamental, florid designs encrusted with decorative twiddles which must have been a night-mare to cast, but which sold very well during the middle of Queen Victoria's reign (1836 - 1901.)

Fig 9. Steelyard. Gilded brass & malachite stone set in the base. The flying angel weight is moved from peg to peg on the beam, $\frac{1}{2}$, 1oz, $\frac{1}{2}$, 2oz. $6\frac{1}{2}$ " high (160mm.)

These fancy scales are anonymous, even though the workmanship suggests a high degree of skill & pride in a good job. Were they always anonymous, or were they presented in a box with the maker's name on it? We cannot date them accurately, but the graduations suggest that they pre-date the Postal Union with France in 1861, as the $\frac{1}{3}$ & $\frac{2}{3}$ oz. are not marked.

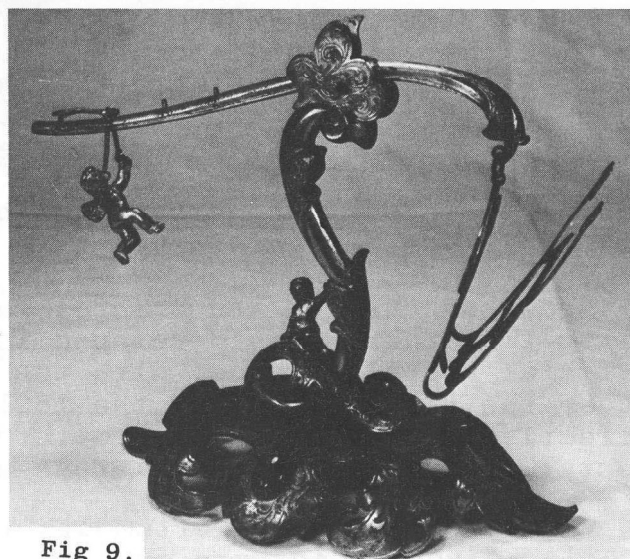


Fig 9.

years after the last rise, most people seem to have felt entirely justified in defrauding the government, with massive initialling by Members of Parliament of letters written by complete strangers, the imitating of their initials by anybody who had had a glimpse of a genuinely franked letter, the re-use of old newspaper covers and the carrying of bundles of letters by travellers. None of this was new, but the scale of the fraud rose enormously.

By 1812 the postage went up yet again because of the War against Napoleon, with letters from London to Edinburgh costing 14d. and the tax on newspapers going up to 4d. and still travelling free. Letters of three or more sheets of paper were weighed and charged by the ounce, but nobody recorded the type of scales used.

The Two-penny Post was extensively used, with over seven and a half million letters a year being delivered round London by 1830, and with the new advantage of a delivery service to any house in London. The Post-office did not offer this facility, but did give merchants a preferential delivery service by allowing the delivery men to dash round delivering the letters early in the day then to retrace their steps later in the day to collect the money owing on each letter. A few letters were being sent pre-paid by this date but the system was still cumbersome and slow, as well as expensive.

A few towns had enterprising citizens who set up Penny Postal Services in imitation of the London system. Edinburgh had one started in 1774, with parcels up to 3lb. going once an hour throughout the day to any part of Edinburgh and its environs for one penny. Yet again, we are ignorant of the type of scales used to check that the parcel was under 3lb.

The Government was jealous of any citizen who set up a service in competition with theirs, as they assumed that any postal system was depriving them of revenue. They never took into account that the initiator had found a gap in the service provided by the government and that he frequently gave a greatly superior service to his customers. The Government compulsorily took over these local postal systems and either ran them (often on a reduced scale,) or shut them down in a short time. The business men of these areas must have cursed London bureaucrats for their short-sightedness.

Glasgow, Manchester and Bristol ran their own Penny Posts and fifty-two other areas developed local services outside the official Postal Service, with the permission of Parliament, under the Fifth Clause of the 1801 Act. The Post-master General effectively prevented the growth of this idea by setting up rival Postal systems in the same areas and thus making them unprofitable.

If you were living in Portsmouth in 1830 you could write to your son in Edinburgh in very much the same way as your ancestor in

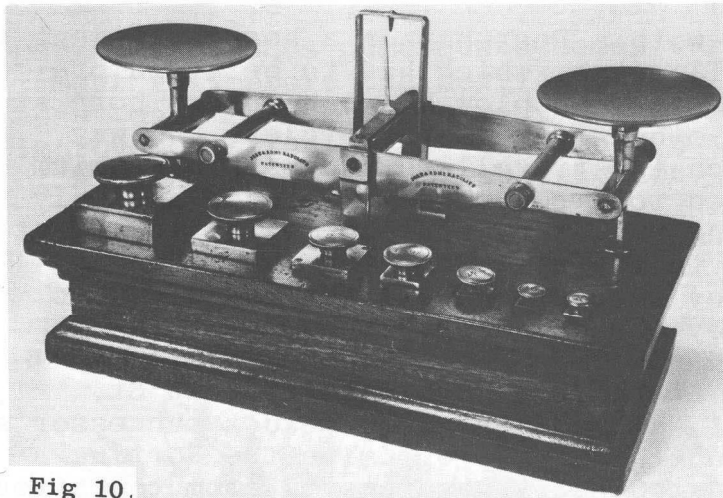


Fig 10.

Fig 10. Brass roberval partly encased in mahogany base. Stamped Josh. & Edmd. Ratcliff patentees. Weights $\frac{1}{4}, \frac{1}{2}, 1, 2, 4$ & 8oz. 9" long (225mm.) Patent not found, possibly refers to some entirely different object.

Both these large postal scales would have looked very dignified but interesting on a large desk in an office or study. Both have graduations suggesting that they pre-date the Postal Union of 1861.

Fig 11. steelyard. Brass on cast iron base. Cast name 'J & E Ratcliff, Makers'. Graduations cast into beam, $\frac{1}{4}, \frac{1}{2}, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15$ & 16 (oz.) 12' long (300mm.)

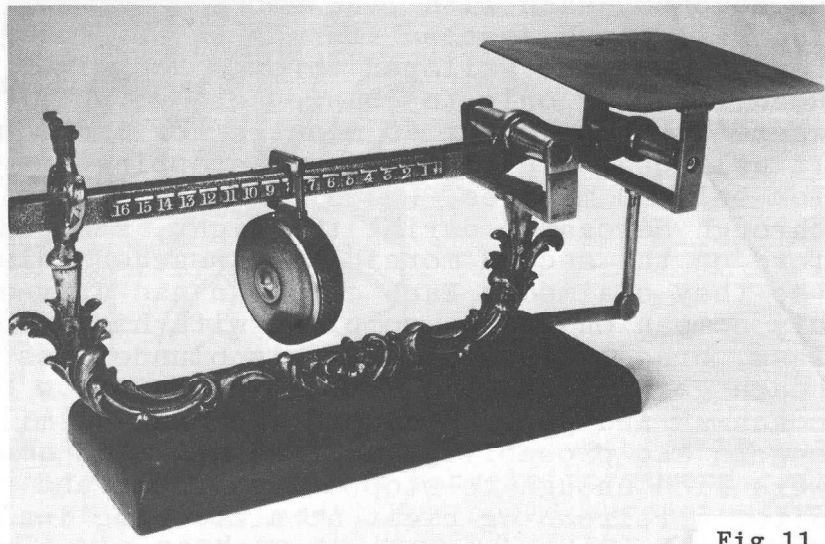


Fig 11.

1658. The letter was to travel 426 miles;- 72 miles to London, and 373 miles from London to Edinburgh. You still only bought a single sheet of paper, but when you had written your letter and sealed it with wax, you checked that none of your friends could smuggle it up to Edinburgh for you. This was not considered dishonest;- after all, nine letters were smuggled for every one that went through the Postal system, and and of those that actually travelled through the Post, most went free of charge because Members of Parliament franked 5,000,000 letters a year. You asked whether anyone could ask a favour of your Member of Parliament, and only as a last resort, did you go to the General Post Office in Portsmouth and find out what your son would have to pay on receiving the letter.

$\frac{1}{2}$ d.	to cover the cost of tolls on coaches
8d.	Portsmouth to London
14d.	London to Edinburgh
$1/10\frac{1}{2}$ d	or about £12 today (\$20)

Your letter no longer went with a Post-boy on a horse, it went in a large Strong-box on a Mail-coach, which had to be given precedence on all roads. The coach-man blew his long brass horn at frequent intervals to warn other road users to clear the way, even on toll-roads, on which the travellers had paid a premium to be on the well-maintained toll-road. The Mail-coach had only four passengers, raced along pulled by four horses galloping at full stretch for ten miles to the next coaching inn, then the horses were changed and they accelerated off for the next ten miles;- all made possible by the new tarred roads.

Your letter was off-loaded at the big Sorting Office in St. Martins Le Grand, (no doubt watched by Samuel Read's successor's, one of the Degraives, who had their shop opposite the Sorting Office.) The letter was counted as it was removed from the strong box so that the correct fee could be paid to the coach-man and to the Portsmouth post-master. It was put into the Edinburgh strong-box and the box loaded onto the Edinburgh Mail-coach, one of the 28 coaches, each with four horses, waiting to leave at 8.00p.m. The Mail-coach jostled its way out of the gross congestion of London and then galloped through the night, up the Great North Road, pausing only to change horses, until it reached Grantham, where it stopped for 40 minutes for the consumption of breakfast. It galloped on until 5.00p.m. stopping for dinner at York, again for only 40 minutes, (people ate two meals a day.) It galloped through Newcastle during the night, stopped for breakfast at Belford on the second morning and reached Edinburgh at about 2.23p.m. (so they claimed!) Each coachman had driven a 40 mile section with his companion guard, complete with his armoury of regulation cutlass, brace of pistols and his blunderbuss, then both had left the coach going north and done a return drive back to London. A fresh coachman and guard had done the next 40 miles, but the poor passengers had probably jolted the whole 43 hour journey (unless they were rich enough to stop off en route and continue their journey after a refreshing night at a coaching inn) If the coach broke down during the journey, the mail-guard had instructions to unhitch one horse and take the mail only in to the next staging-post, from which point it was taken by another coach to Edinburgh, but those poor passengers had to wait in the coach for the repairs to be done.

Your letter was off-loaded at the Edinburgh Sorting Office, counted again and probably checked again to make sure that it contained only one sheet of paper, and put into an Alphabet-box (a pigeon-hole,) to await collection. There it waited until your son looked in to see whether he had any letters. You can imagine his consternation at having to find 1/10½ (£12 or \$20) while still an impoverished apprentice or student. I'm sure he muttered about the need for a mechanised, economical form of transport, such as Watt and Stevenson were developing (the railway reached Edinburgh in 1847.)

During the 1830s numerous schemes were recommended to Parliament to improve the service and to help industry and business to communicate. So many people recognised the need for improvements that it is difficult not to accuse the Members of Parliament of wilful obstruction.

Rowland Hill published his pamphlet, 'Post Office Reform, Its Importance and Practicability,' at the beginning of 1837, and Parliament eventually bowed to public pressure and set up a committee in 1837 to investigate Postal Reform.



One of the problems was the lack of a comprehensive book-keeping system to inform investigators as to how many letters were carried by the General Post in an average year. How could anyone estimate how many more letters would need to be carried if the rate were to be reduced to one penny, including the cost of an envelope, for an unlimited journey across Britain? Some influential people argued that twelve times as many letters would have to be carried to produce any profit, while Rowland Hill estimated that within a few years profits would start to accrue, while at the same time, an excellent service to the lower classes and to business would make life happier and more prosperous. Enormous numbers of people agreed with Hill and they signed one of the 320 petitions that were sent to Parliament in 1837/1838. Merchants formed what would now be called Pressure Groups, that printed pamphlets, organised people to give evidence before the committee, and published appeals. Almost every magazine and newspaper in the country ran a campaign in favour of Hill's proposals.

On 23 March 1839 the Speaker of the House of Commons invited all Members of Parliament to step forward with their Petitions relating

to Postal Reform. A huge number crowded forward to present them, amidst cheering on Government and Opposition Benches. Both Houses of Parliament were inundated with petitions -over 2000 petitions in 1839 - including one from the Lord Mayor of London and 12,500 merchants, whose signatures were collected in a heated fervour in only 24 hours.

Parliament finally bowed to public demand and passed a Bill on 17 August 1839, as a provisional measure, to reduce charges to a uniform rate of one penny per half ounce, to abolish franking and to provide pre-paid covers. If the letter was to be paid for at the far end, it was to pay double the rate (although, by the middle of 1840, only 10 % of letters were still going unpaid.)

POST OFFICE REGULATIONS.

On and after the 10th January,
a Letter not exceeding **half an ounce**
in weight, may be sent from any part
of the United Kingdom, to any other part,
for **One Penny**, if paid when posted, or
for **Twopence** if paid when delivered.

THE SCALE OF RATES,

If paid when posted, is as follows, for all Letters, whether sent
by the General or by any Local Post,

Not exceeding $\frac{1}{2}$ Ounce **One Penny.**

Exceeding $\frac{1}{2}$ Ounce, but not exceeding 1 Ounce. **Twopence.**

Ditto 1 Ounce **2 Ounces Fourpence.**

Ditto 2 Ounces **3 Ounces Sixpence.**

and so on; an additional Two-pence for every additional Ounce.
With but few exceptions, the Weight is limited to Sixteen Ounces.

*If not paid when posted, double the above Rates are charged on
Inland Letters.*

COLONIAL LETTERS.

If sent by Packet Twelve Times, if by Private Ship Eight Times, the
above Rates.

FOREIGN LETTERS.

The Packet Rates which vary, will be seen at the Post Office. The
Ship Rates are the same as the Ship Rates for Colonial Letters.

As regards Foreign and Colonial Letters, there is no limitation as to
weight. All sent outwards, with a few exceptions, which may be learnt at
the Post Office, must be paid when posted as heretofore.

Letters intended to go by Private Ship must be marked "Ship Letter."

Some arrangements of minor importance, which are omitted in this
Notice, may be seen in that placarded at the Post Office.

No Articles should be transmitted by Post, which are liable to injury,
by being stamped, or by being crushed in the Bags.

It is particularly requested that all Letters may be *fully and legibly*
addressed, and *posted as early as convenient*.

January 7th, 1840.

Fig 12. Left: Shelf-edge bismar. Bright steel beam. Blued steel spring holding the saddle with the feet on it against the beam. Blued steel letter clip. Holes in beam marked $\frac{1}{2}$, 1, 2 (oz.) Stamped 'Thornhill, New Bond St.' Beam $4\frac{1}{4}$ " long (110mm.)

Right; Virtually identical, but marked 'W Lund, 24 Fleet St. London' Cap end case made of stiff card covered with maroon leather, a typical case for shelf-edge scales during the Victorian period.

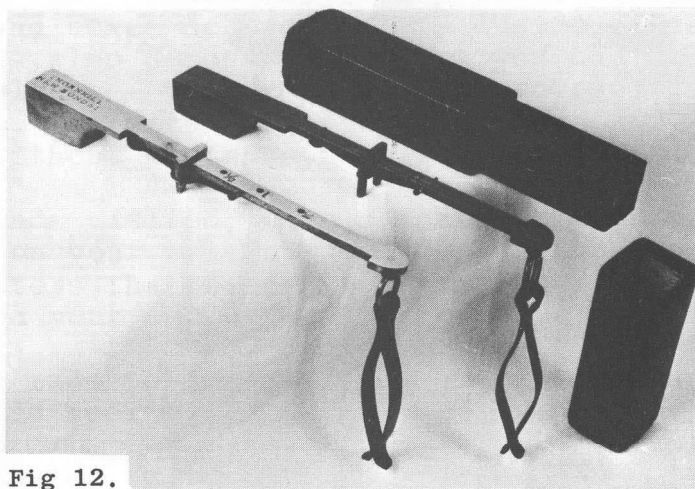


Fig 12.

F Wallis collection

Thornhill advertised as 'Cutler & dressing case maker to the Queen' in 1873. John Farthing also sold identical scales, & he advertised as a 'Writing machine manufacturer' in 1844. Obviously, any maker of cutlery or machines was capable of making simple shelf-edge scales, but the third man, William Lund, seems an excellent candidate for real maker. He registered a mass-stabilised pan letter scale in 1839, and two designs for hydraulic candlesticks in 1839 & 1840, so must have specialised in scales. He also made corkscrews.

Fig 13. Tiny roberval scale screwed to the lid of the weight-compartment, which slides aside to reveal square weights, oz $\frac{1}{4}$ F, oz $\frac{1}{4}$ F, oz $\frac{1}{2}$ 1P, oz 1 2P, oz 1 $\frac{1}{2}$ 3P. (F for foreign post, P for Postal Units of 1d. each.) Letter plate folds up to fit into the maroon leather case, the two wings of which fold up to close over the scales. Weight plate pre-loaded to oz. $\frac{1}{2}$, stamped S Mordan & Co. London. Case $5\frac{1}{4}$ " long (138mm.)

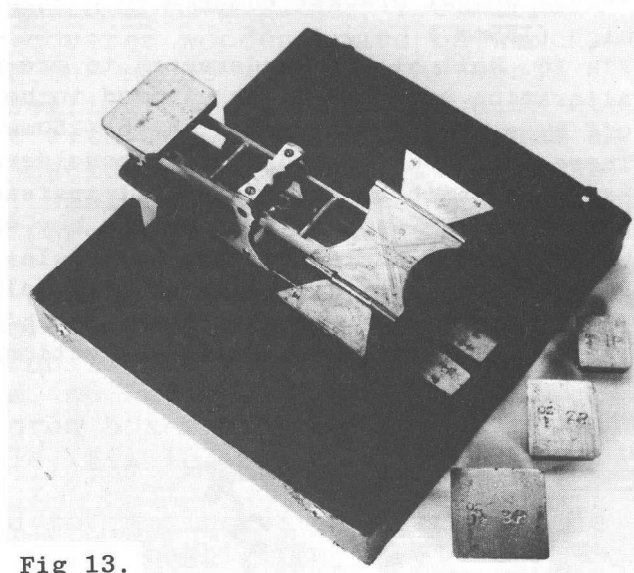


Fig 13.

In fact, the reductions were only brought in gradually and the public suspected that they were being deprived of the improvements passed by the Act. There was such a fuss that on 10 January 1840 the Penny Post was brought in as the Act stated, and the number of letters going through the system rose immediately. A check was kept on the volume of mail passing through the Post and well over twice as many letters were posted each week in February as had been posted each week in November 1839.

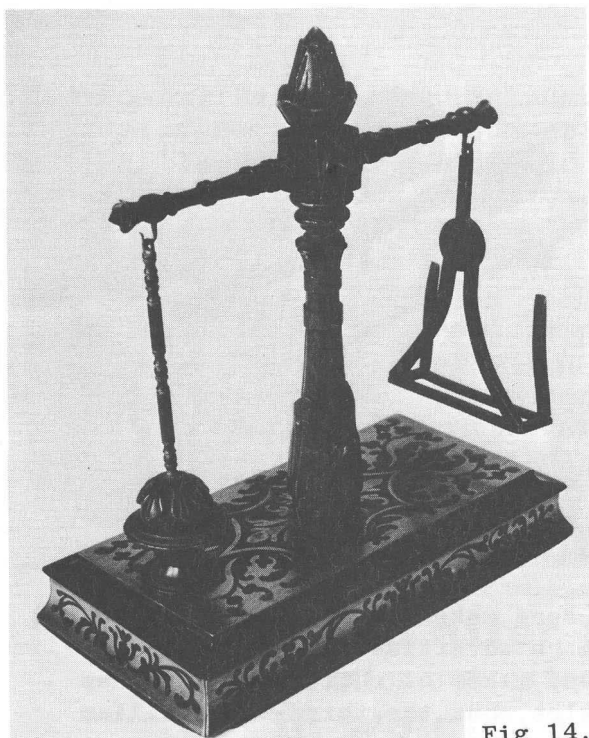


Fig 14.



Fig 15.

Four anonymous black-patinated scales, decorative in detail but sombre in effect. Probably called 'classical' or 'Roman' by the retailer.

Fig 14. Ball pre-weighted to $\frac{1}{2}$ oz. so presumably made before 1871, when the lowest weight bracket changed to 0 - 1oz. Base ebony with brass inlay. 7" high (185mm.)

Fig 15. Ball altered underneath to pre-weigh 1oz, so either returned for alteration after 1871, or altered to be sold after 1871. The patina stripped off by a previous owner. 6" high (150mm.)

These ball and rod scales vary considerably in ornamentation, sometimes having a chain securing the ball instead of a rod. The distinctive letter hanger is the same as that on the boy scale (Fig 2) so the same maker made both types of scales. As the boy scales date back to 1839, perhaps these do.

Fig 16 Equal arm, high-lighted with gold lacquer. Weights also high-lighted, for 1, 2, 4 (oz.) Mahogany base. $8\frac{3}{4}$ " high (210mm.)

Fig 17. Steelyard, Bob Stein collection.



Fig 16.

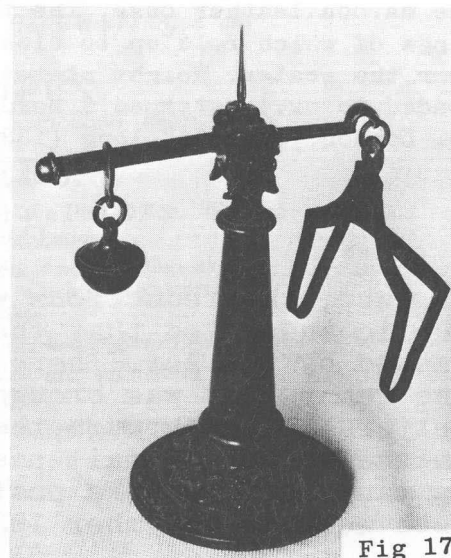


Fig 17.

People who backed the Penny Post showed their support by having slits cut in their doors, and boxes screwed to the inside of the door to catch the post. This also demonstrated that you had correspondents in far off places - you wrote letters yourself, and expected to receive replies. You were educated, civilised and modern! And all signalled without a single boastful word!

Even better, when your friends visited, they saw and admired your ornamental scales, sitting on your writing-desk or bureau. You obviously wrote so many letters that needed to be weighed at the Post Office, that you needed your own scales! Impressive!

Beautiful brass scales were made to decorate the home, with many stationers and brass founders seeing the potential market for delightfully frivolous concoctions. Foliage luxuriated, mythical figures posed, palm trees curled, gilding shone and ivory, pure and virginal, ornamented the furniture. (See EQM pages 346, 402, 683, 686, 839, 934, 936, 939, 940, 957, 994) Figs.1 - 9.

The scales made for the offices of professional men reflected their dignity with their sturdy construction, thick brass and confident use of mahogany. (See EQM pages 690, 691, 944) Fig 10 and the Cover picture.

People bought lap-desks, a wooden box cut horizontally at an angle, which opened on one's lap to form a slope. The slope was formed by a gilded leather-covered wooden board on which letters could be written. Under the slope were compartments for storing paper, ink, pens, sealing wax, candles, scales etc. Owners enjoyed fitting them out with ingenious devices such as the little compendiums made by Sheldon and Mordan, comprising pen, pencil, sovereign checker, seal (to press into the sealing wax,) and spring letter scale. (See EQM pages 686, 947,)

Alternatively, simple but very elegant little shelf-edge scales in leather cases were made by Greaves (See EQM page 1032) and either made or retailed by Thornhill and W. Lund, Fig 12. These fitted neatly into a tiny space, so were practical for travellers, as were the maroon leather-covered boxes made by Mordan containing a tiny roberval letter scale, Fig 13.

Even in those days people liked to remember nostalgically the major events of their day, and they bought commemorative mugs, medallions, plates, handkerchiefs and letter scales. Rowland Hill's plan for Penny Postage was commemorated on a bronze medallion, which was the counter-weight of a postal bismar. Fig 1. The Crimean war and the Zulu wars were commemorated with decorative roberval postal scales made by S.Mordan & Co.

The death of Prince Albert, beloved husband of Queen Victoria, in 1861, was probably the cause of the up-surge of enthusiasm for black-patinated scales. Touches of gold lacquer relieved the sombre patina, but the plain, 'antique-bronze' finish was much admired. Figs. 14 - 17.

To be continued in next issue.

To Clean or Not To Clean

Part 2

Michael Crawforth

CLEANING WITH ABRASIVE PAPERS

Wrap a single layer of abrasive paper around a finger or stick, and rub in one direction in straight lines. Go across narrow surfaces and around round surfaces. Take extra care not to remove corners, intentional marks or decoration.

If there is a thick hard layer to remove, start with abrasive paper, grade 300, then use the finer grade 500, and finally finish brass with liquid abrasive polish, or finish steel with polishing paper.

If you have a large area to clean, say, heavily blackened brass pans 100mm (4") or more in diameter, use the 'wet-or-dry' paper wet. Use an old bowl with a little water and dish-washing liquid, and rinse the pan and the paper very frequently. The purpose of the rinsing is to prevent clogging of the paper by washing away the removed dust.

For large iron or steel objects you may need to resort to emery cloth and a wire brush, to remove thick rust.

BEWARE: Domestic abrasive papers, commonly used for re-decorating and do-it-yourself woodwork and metal-work, are totally unsuitable for cleaning scales. They leave permanent scratches. Do not be tempted to use them.

Materials

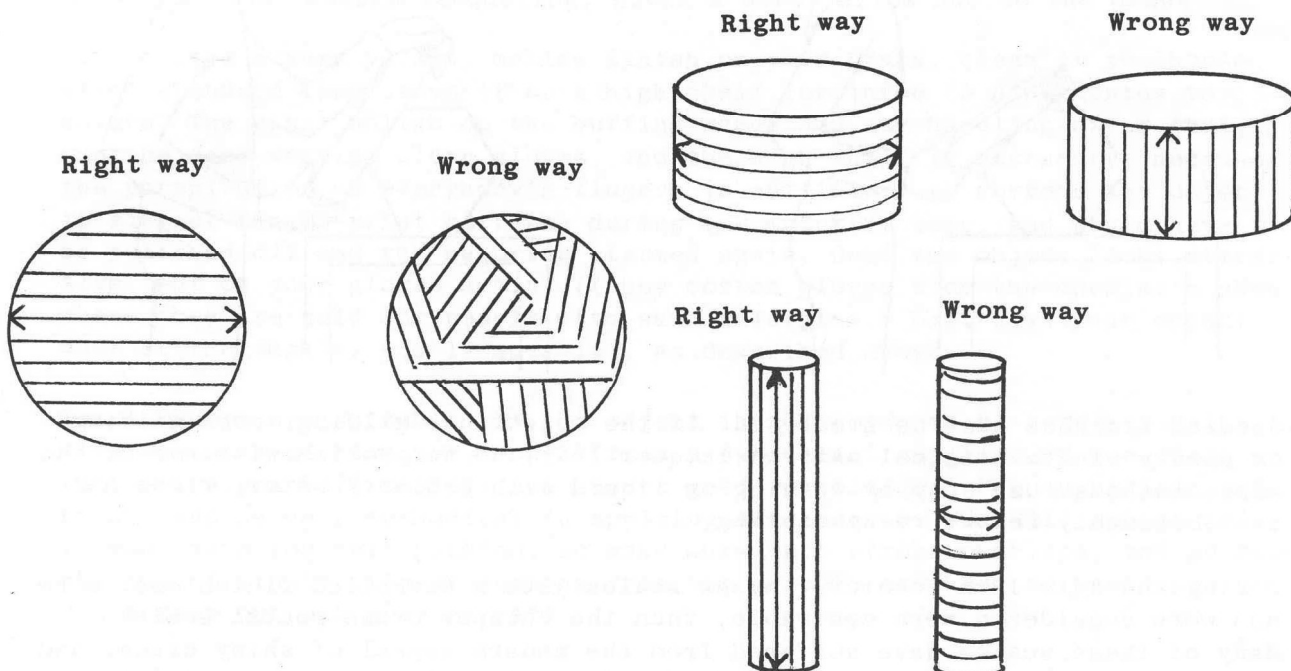
BRASS

(a) Normally use a liquid abrasive cleaner of the type which has to be rubbed on with a cloth and leaves a white deposit on the object if it is left to dry (called "Brasso" in Great Britain.) Do not use the liquid polishes which work chemically, as would lemon juice, vinegar, rhubarb pulp or other acid formulae, unless you are a professional cleaner with years of experience behind you. The correct powdery liquid must be washed off in soapy water then clean water, or scrubbed with white spirit.

(b) For heavy oxidation use 350-400 grade Wet-or-dry abrasive paper, used wet with a little soap. When the brass is reasonably clean, go on to methods in paragraph (a).

(c) For very heavy oxidation use 250-280 grade Wet-or-dry paper, used wet, then go on to methods (b) then (a). Read the section on "Cleaning with Abrasive papers" above, and remember always to rub in ONE DIRECTION.

Do not turn the object to a new angle. On lumpy or textured surfaces, a toothbrush used with the liquid polish can get into awkward places, but remember the rule about the housewife. She would not clean in awkward crannies too industriously so you shouldn't either. Dark areas give an impression of age and define the shape more markedly.



Chains are very difficult to clean. Anchor the chain at one end securely (one link in the vice, nailed to a piece of wood, tied to a fixed object, hung on a hook etc.) and pull tightly. Rub with a cloth soaked in liquid abrasive cleaner as (a) to clean the outer surfaces of the links only. Then wash thoroughly.

If a chain is dipped in an acidic cleaner, and the inside surfaces of the chain are cleaned, the chain will look new and offensive to the eye. To rectify this common fault, or when replacing old chain with new chain, reblack the whole chain (see page 1209) then very carefully rub off the blacking on the outer surfaces only. You will be amazed by the improvement in the appearance of trade scales particularly.

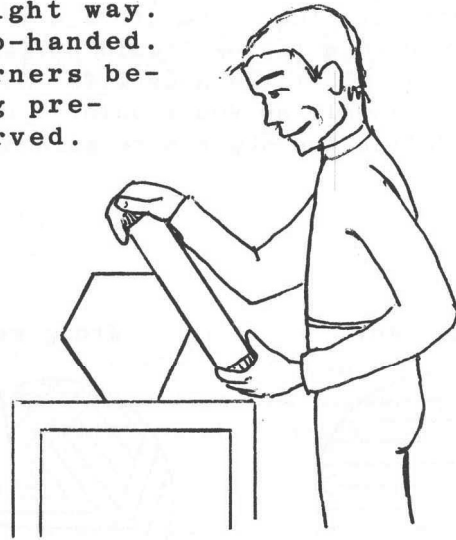
Difficult shapes can be cleaned chemically (page 1208) but be extremely cautious. If left too long, the object becomes over-clean and may have a pink coppery surface finish where other metals have been leached out. If the object is incredibly encrusted, and you must use "pickle", check the object frequently.

Polishing brass is easier and quicker with a buffing wheel (page 1206) but it is incredibly easy to have the bit flicked out of your hand to fly into your eye; or twisted so that it cuts you badly before you have time to react. If you do not have steady hands and arms, or if you are inconsistent in the pressure you can apply, do not try this method.

Wrong way.
One-handed.
Corners be-
ing rubbed
off



Right way.
Two-handed.
Corners be-
ing pre-
served.



Special finishes must be preserved. If the object has gilding, mock-gilding or plenty of its original saffron-lacquer left, do not polish with any of the above methods. Use soap or washing-up liquid with ordinary water, rinse and dry thoroughly before re-assembling.

During the late 19th. century, brass scales with a nickelled finish cost more and were considered more desirable, than the cheaper brass postal scales. Many of these scales have suffered from the modern appeal of shiny brass, and have had their nickel partly rubbed off. I say 'partly' because nickel is extremely hard and durable, and is extremely difficult to remove. Vicious buffing will remove the nickel from the parts that are easy to get at, leaving the exposed brass severely worn away, and the crannies still white with nickel. Most dealers have given up at this stage and sell the scale in its parti-coloured state. You can never retrieve the worn-away brass, but you can get rid of the parti-coloured appearance by taking the scale to a metal plating and electrolysis firm. They will need to handle the scale dismantled into its constituent parts, and probably will have to be strongly reminded that they are handling an antique which cannot be replaced. It is all too easy for them to lose one little bit at the bottom of the tank. They will remove the nickel by electrolysis, leaving a beautifully clean brass scale. Purists like me then have the whole scale replated with nickel, giving the scale the best possible protection for the future.

Occasionally people wish to re-gild postal scales and weights. Using modern concoctions, this is possible but involves stripping off the old gold and starting again. De-grease the scale with white spirit and follow the manufacturers instructions. Alternatively, hand the scale to a professional gilder, making sure he is not going to charge too much money. Because the layer of gold is so thin, very little gold is used and it should not be expensive. Beware the man who tells you differently!

Whichever finish is newly applied, the results are somewhat blatant. The scale gleams immaculately, shows no signs of age and looks as out of place in a collection of antique scales as a horse with a herd of donkeys.

PROTECTING BRASS

If the brass is somewhat modern and has a pinky-white colour, or if you are matching up a replacement piece of brass, judicious warming of the brass in a domestic oven, before lacquering, gives a more yellow hue to the brass.

If you like a very yellow, mellow finish on your brass, clean it to 'housewife' standard then leave it on a high shelf for three to nine months to mature. The final polish on the buffing wheel and any handling after that, must be done wearing clean gloves, and the high shelf is necessary, because the perspiration on everybody's fingers is sufficient to corrode the object in elegant finger-print patterns during the maturing time, and would have to be polished off and the maturing started again. Once the object looks attractive, put on your gloves again, (I buy cotton gloves from the chemist's shop, where they are sold for people with skin allergies.) Lift down your object, dust it thoroughly, and lacquer it, as described above.

Two lacquers are suitable. If the object is not going to be handled, paint it with museum-grade lacquer, bought from a specialist supplier. Use a clean room (not where you buff scales) and ensure good ventilation. Use an artists' soft brush, and be very methodical in applying the lacquer. You will not be able to see where you have painted, so make sure each stroke overlaps, and go round the object slowly without jumping from one area to another, to make sure you don't miss out one stay or part.

If the object is to be handled (say, if it lives in a much used room and will be dusted regularly,) use polyurethane lacquer, sold in hardware shops for protecting furniture and brass, or at a marine store for brass work on boats. Again, use a very clean room, ventilate it well, use an artist's soft brush, overlap each stroke and hang on fine threads to dry. The result will be durable and almost invisible, but it can be seen if the object is looked at very critically.

Some people apply lacquer to each part and then reassemble the object. Others assemble the object after cleaning and then lacquer it. I use the first method, then hang each bit by a fine thread in a clean atmosphere to harden overnight.

The Crawforth collection, insofar as it has been protected, has only had museum lacquer used on it and many of the objects were protected fifteen years ago, yet still show no sign of needing to be dismantled, polished and re-lacquered.

TINPLATE

The tinplated bow-front spring balances, bilateral pendulums, and tin candlestick scales are best left alone if they have rusted badly. Nothing will restore them to their former glory. If the design is rare, I buy even dilapidated scales and accept the imperfections. If they are a common type, I resist and wait to buy one in better condition.

If you have one which is still deteriorating, remove the rust with a wire brush then apply a rust-killer as used by car restorers, then polish the scale by hand, protecting the metal with a plain wax polish. Be very gentle if you are handling a bilateral pendulum as the parts are made of very thin metal. The bent-over flaps break incredibly easily and the multiplicity of parts means that to straighten a lop-sided scale (and it is amazing how many have been squashed,) can involve bending a lot of parts, any of which may unexpectedly snap irreparably. Never attempt to dismantle a bilateral pendulum before cleaning it, as the resulting pile of snapped bits of your once-interesting scale will have to be thrown away.

I have tried using the silver-rub which is applied with the finger, but the resulting colour is a poor match and the eye always picks up the rubbed parts.

BRASS WITH CHEMICALLY BROWNE PATINA

Wash using a mild detergent, brushing with a soft tooth-brush, rinsing well in clean water and drying thoroughly. If the only place that the basic brass shows is where the object has been handled during its working life, I would not touch up the bright areas, as this is part of the normal history of the object. If the object has suffered from the ministrations of an over-enthusiastic owner and has lost the major part of its patina, then the use of gun browning or blacking is probably an unfortunate necessity. Purists will leave all original patina and only touch up the bright areas, but because the new colour will not be the same colour as the original, the repairs will always show a little. Many collectors will strip off any remaining patina and coat the whole object with gun-black. This is a drastic step, and not what I would do myself, because I want to know what the original finish looked like.

Do check any patinated scales for signs of gilt-lacquering, and do not mistake them for areas of wear. Occasionally weights with patinated postal scales had matching lines of gilt-lacquering round the concave top.

BRONZE

Polished bronze loses a lot of its value so leave the dark patina which is so much admired. If patches of green, dry verdigris spoil the colour and corrode the surface, PUT ON A FACE MASK and brush the surface vigorously with a brass wire brush (sold to clean suede shoes.) This cleans the verdigris off, gives a pleasant shine but leaves the patina intact. Finally, wipe the whole object with wax furniture polish (which does not contain silicone and is not a spray on product.)

BRONZE WHICH HAS BEEN OVER-CLEANED

Hang the object outdoors by thin threads, to expose the maximum area to damp climatic conditions. A flowerpot on the north side of the house can provide a suitable micro-climate. Leave for six to twelve months, checking that it is always slightly damp. Obviously, the British climate was designed specifically for weight collectors, and those of you who have the misfortune to live in dry, sunny places must improvise with propagating boxes, basements and deep wells. You poor deprived people!

If the object is patchy, as where verdigris has attacked, the chemicals used by gun-smiths to brown gun-barrels, may be applied, but the results are not totally satisfactory. "Camouflage of damage" is probably the best that can be achieved.

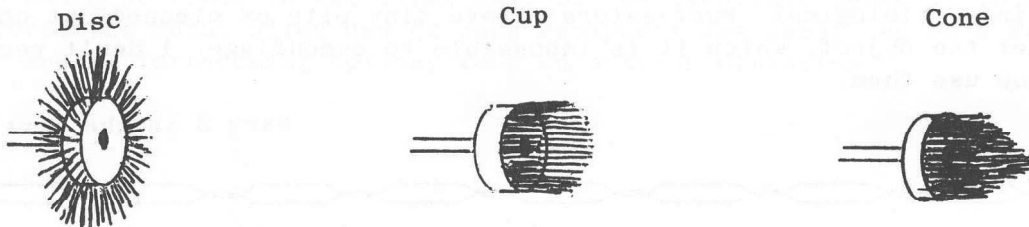
STAINLESS STEEL

This is very easy to clean with liquid abrasive polish, or with stainless steel soap used with a buffing wheel. Alternatively, use the cleaner sold in hardware shops to clean stainless steel pans.

IRON AND STEEL

Firstly, protect your eyes with goggles and protect your lungs with a face mask.

Light deposits of rust can be brushed off by hand using a wire brush with steel bristles, or by using a rotary wire brush held in an electric drill on a stand. For various nooks and crannies you will need discs, cup and cone wire brushes.



Then rub with 250-280 'wet-or-dry' emery cloth used dry, either pulled across the object (as one would dry one's back with a towel after a shower) if the object is cylindrical, or with the 'wet-or-dry' wrapped round a flat piece of wood if the object to be cleaned is flat. Do not rub across corners or edges at an angle or you will ruin the sculpted shape and the crisp definition.

Then rub with 350-400 grade emery cloth to polish the surface. If a high polish is required, go on to use polishing paper, or move to the buffing wheel.

A relatively high gloss is achieved by buffing with coarse 'soap', but the best polish is achieved by going on to a final polish with fine 'soap' (jewellers' rouge) using the methods discussed on page 1207.

If the rust is very heavy, precede the methods discussed above by scrubbing with a wire brush, and then rubbing gently with a smooth file to remove the lumps. Do not be impatient and use a handy-mans' file or you will scratch the metal and have extra work in the long run.

Phosphoric acid* leaves black patches but, after light polishing, this gives an impression of age and looks respectable. Do not polish highly as the combination of corroded patches with a high shine gives a contradictory appearance which disturbs the onlooker.

If you obtain iron weights with thick accretions of rust, grease and filth in the concave top, scrape out with a hard pointed tool, then with a steel pin (as used by dress-makers.) The weight will appear scratched after this process but do not worry. Go on to brushing with a wire brush and finish with phosphoric acid.

Although some weights were originally painted with black enamel paint, I never re-paint them. The bright, modern finish over a battered, worn surface looks totally alien. Try a good rubbing of black shoe polish to give a dark, lustrous sheen that enhances raised lettering but does not look new.

For very old iron beams which do not live in boxes, such as large trade scales used outdoors, many people now aim for a natural brown finish. This can only be achieved on scales which do not require the more violent methods described above. If the beam is in good condition, with only a little light rust on its surface, just rub thoroughly with genuine wax polish on top of the rust. Do not use wax which contains silicone. The wax preserves the surface but leaves the colour as it probably was during much of its life. Once one becomes accustomed to looking at brown iron, the black finish seems a bit harsh.

A warning;- biological 'rust-eaters' leave tiny pits of cleaned-out corrosion all over the object, which it is impossible to camouflage. I don't recommend that you use them.

Part 3 in the next issue.

A Close Finnish

JOHN KNIGHTS

I came comparatively late to the delights of both serious collecting and foreign travel, and when I do go abroad I naturally look for suitable additions to my modest collection of "metrobelia".

Two years ago, in search of somewhere a little different, I had a short holiday in Iceland, on the basis that this was the country, in our own quarter of the globe, about which I knew the least. It was an interesting experience but that particular, somewhat bleak land, turned out to be a metrological wasteland, where they appear to have been seduced by the microchip to the total extinction of all 'ethnic equipment'.

The following year I again looked at the map of Europe to decide a suitable destination for that year's sojourn, and my eye lit on the large anonymous-looking mass of Finland. On the basis that this was also a country about which I knew little, I decided to go there.

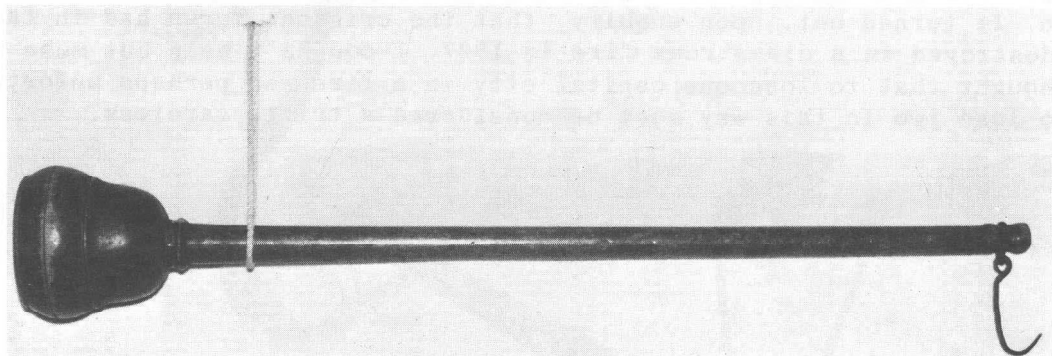
During the period between my booking the holiday and my departure, I happened to see a holiday programme on the television that featured a cruise holiday in Scandinavia and amongst the places of interest included there was a brief report on Helsinki. In particular, there was a fleeting

shot of the market in that city. I was naturally interested in the film, in view of my own impending visit, but my interest was suddenly intensified by the sight of a market trader weighing produce on what was undoubtedly a bismar.

To one steeped in the legal metrology of the United Kingdom, the bismar occupies a very singular position, that of being the one scale whose very existence was outlawed in medieval England.

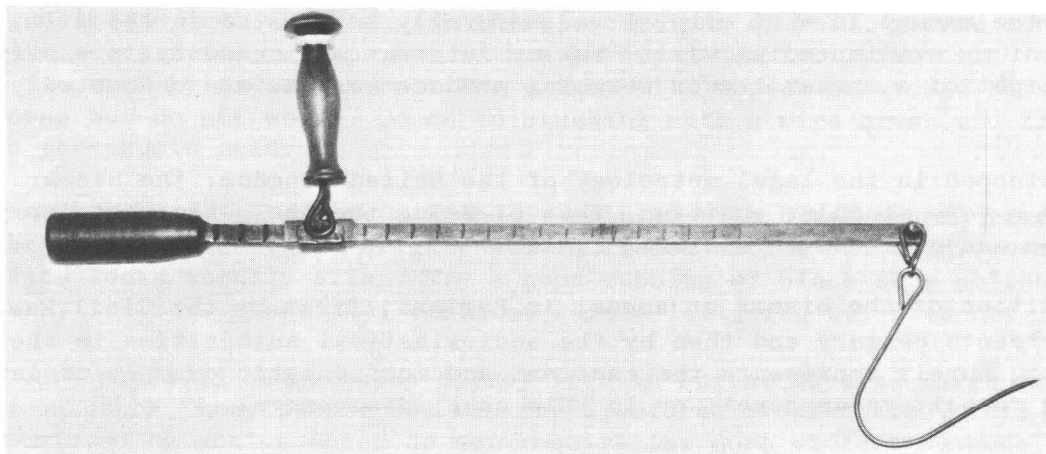
The abolition of the bismar or auncel in England, first by the Civil Law in the fourteenth century and then by the ecclesiastical authorities in the fifteenth, surely represents the earliest and most drastic example of law relating to pattern approval, or in this case, disapproval.

The consequences of the prohibition of this type of weigher appeared to extend over the years to an implied suspicion of unequal arm patterns of all kinds and even in recent times, various attempts to introduce into this country small capacity steelyard systems, common elsewhere, were met with official refusal. Is it perhaps too fanciful to imagine that echoes of that medieval anathema still rattled around the Standards Department of the Board of Trade in the first half of the twentieth century? To see, therefore, the uninhibited use of such equipment was something of a revelation and my forthcoming holiday took on a fresh dimension.



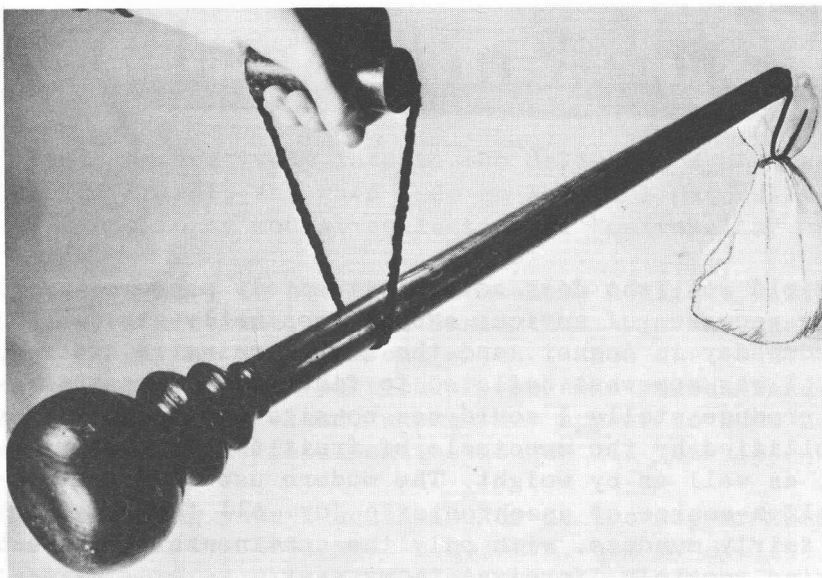
Myself and my eight year old son (who does not unfortunately share my enthusiasm for the darker recesses of antique shops) eventually arrived in Helsinki late on a Wednesday in August, and the next morning we headed for the open air market. I was somewhat deflated to find that amongst the plethora of interesting produce stalls I could see no sign of a bismar. My disappointment was mollified by the spectacle of fruit and vegetables being sold by the litre, as well as by weight. The modern use of dry capacity measures was in itself a source of anachronistic joy. All the weighing equipment, however, was fairly mundane, with only the continental "open" pattern of Beranger looking remotely 'foreign' to my eyes.

After a couple of days in Helsinki, therefore, I was beginning to wonder whether I was mistaken in what I thought I had seen on television. On the Friday, we were due to travel on to Turku, the third city of the country and I wondered what I would find there. My impression of Helsinki was of an attractive, stylish city which was however decidedly nineteenth century



in appearance. This was explained by discovering that the original city had suffered a disastrous fire in 1808 and had been largely rebuilt in the present style. Turku was, I understood, a different proposition. This was the ancient capital of the country and had a famous cathedral and castle and sounded decidedly historic.

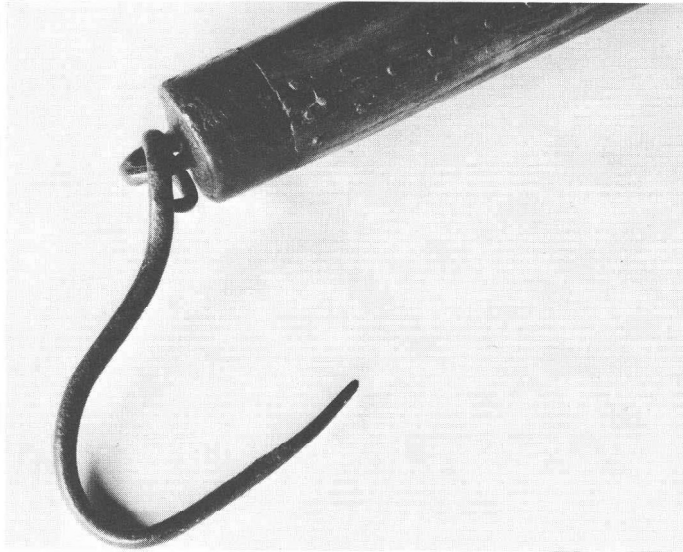
As we left the station at Turku on the Friday afternoon, we found ourselves instead in a town of unimpressive architecture whose wide streets, arranged on a perfect grid-iron pattern gave little impression of any medieval origin. It turned out, upon enquiry, that the original Turku had in fact been destroyed in a disastrous fire in 1827. I couldn't help but muse upon the thought that to lose one capital city in a fire was perhaps unfortunate, but to lose two in this way must be considered a trifle careless.



Turku did, however, possess a market square and it was to this that we headed on the Saturday morning to find a very similar style of market to that in Helsinki. There were the same wooden 2 and 5 litre measures, the same continental-pattern counter machines, even some nice decimal scales, but in addition, at last, a number of the traders were seen to be weighing produce with small hand-held bismars. Turku also held the prospect of a

number of antique shops and I resolved to get into as many as possible before we left on Monday, in the hope of finding an example of a bismar to stick in my suitcase for the journey home. I had unfortunately reckoned without the Scandinavian weekend, which basically means that everything shuts at lunchtime on Saturday and remains securely closed until Monday morning. This inaccessibility was a source of some delight to the eight year old but a considerable disappointment to me.

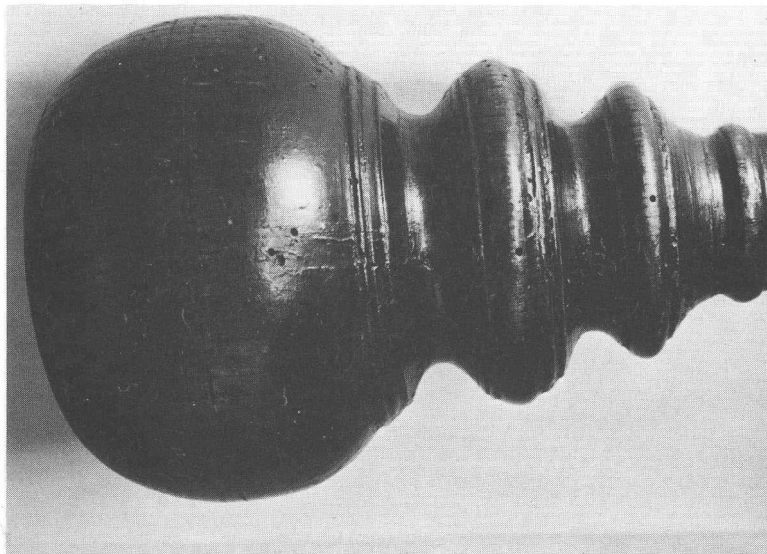
We spent the remainder of the weekend looking around the various tourist attractions that Turku had to offer and I was amazed to find the prominent place that the bismar appears to play in Finnish history. Far from being a forbidden instrument, as in Britain, it is almost a national emblem as far as the Finns are concerned. In the folk museum at Turku, bismars of both the traditional wooden form and the more modern metal designs were seen displayed in connection with various trades. In the kitchens of the ancient castle I saw a beautiful 18th century wooden device which was well marked with a date, 1772, and what appeared to be a verification stamp of some kind and in the delightful apothecary museum in the town I encountered



a small and very fine example, presumably used originally in connection with that particular trade. All this fuelled my aspirations to obtain even a modest example of such a scale, but as we were due to leave Turku on the Monday, at about midday, the opportunity to do so was, by now, somewhat diminished. Most shops in Turku open at nine o'clock on Monday morning. Antique shops do not. As in this country, they begin to open at about ten o'clock, if you are lucky, and unfortunately the most promising looking place steadfastly refused to open at all on that particular Monday morning. A breakthrough was achieved, however, in one shop where a reasonably nice wooden bismar was found and purchased, fairly early on. Despite this success I was still very keen to acquire a metal one, like those I had seen in the market, but this continued to be elusive.

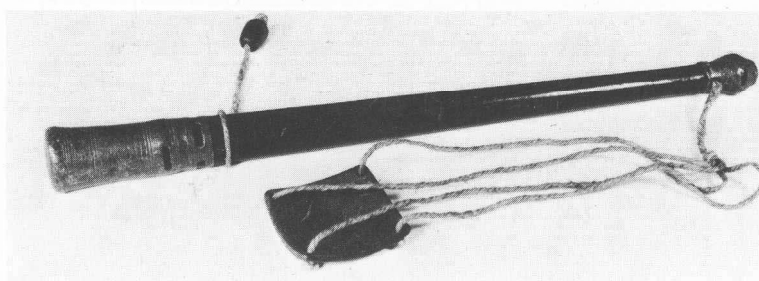
As the time ticked away towards our train's departure, I continued the search. I looked in all the shops I could find open, without success, and then just as I felt I would have to give it up and head for the station,

I decided to take one more look at a rather seedy looking emporium that had been closed the last time round. It was difficult to tell whether it was in fact open or not from the meagre amount of light showing within. There was nothing in the window to indicate its time of opening nor was there any sign of the desired merchandise. It was now about 11.30 a.m. so this was my last chance. I tried the door, it opened, and myself and a thoroughly fed-up eight year old entered. It was in fact rather more pleasant inside than had been apparent from without and there, hanging from the ceiling, amongst assorted bric-a-brac, was a metal bismar.



Most Finns, in my experience, speak excellent English. The lady who ran this particular shop was unfortunately an exception to this principle. With the aid of a writing pad, however, the price of the item was eventually established and I was able to leave the shop with my prize and we got back to the station in good time to catch the train to Helsinki.

The example I obtained was not particularly old, bearing a verification stamp of 1947, nor on closer examination was it a particularly well made or beautiful piece of equipment. None of these considerations however detracted from the pleasure of ownership of what was, to me, a fascinating and even slightly arcane piece of apparatus whose very existence served to emphasise that metrology is not only a matter of physics and engineering but is in its various traditional manifestations also a product of national history and culture.



Bismars were also used round the Indian Ocean, both for trade and for coin/bullion. Ebony beam weighted with lead, decoratively cut away on the sleeve, & at the load end. Silver pins of great delicacy show graduations. Coconut shell pan . 11 $\frac{1}{4}$ " long (290mm.)

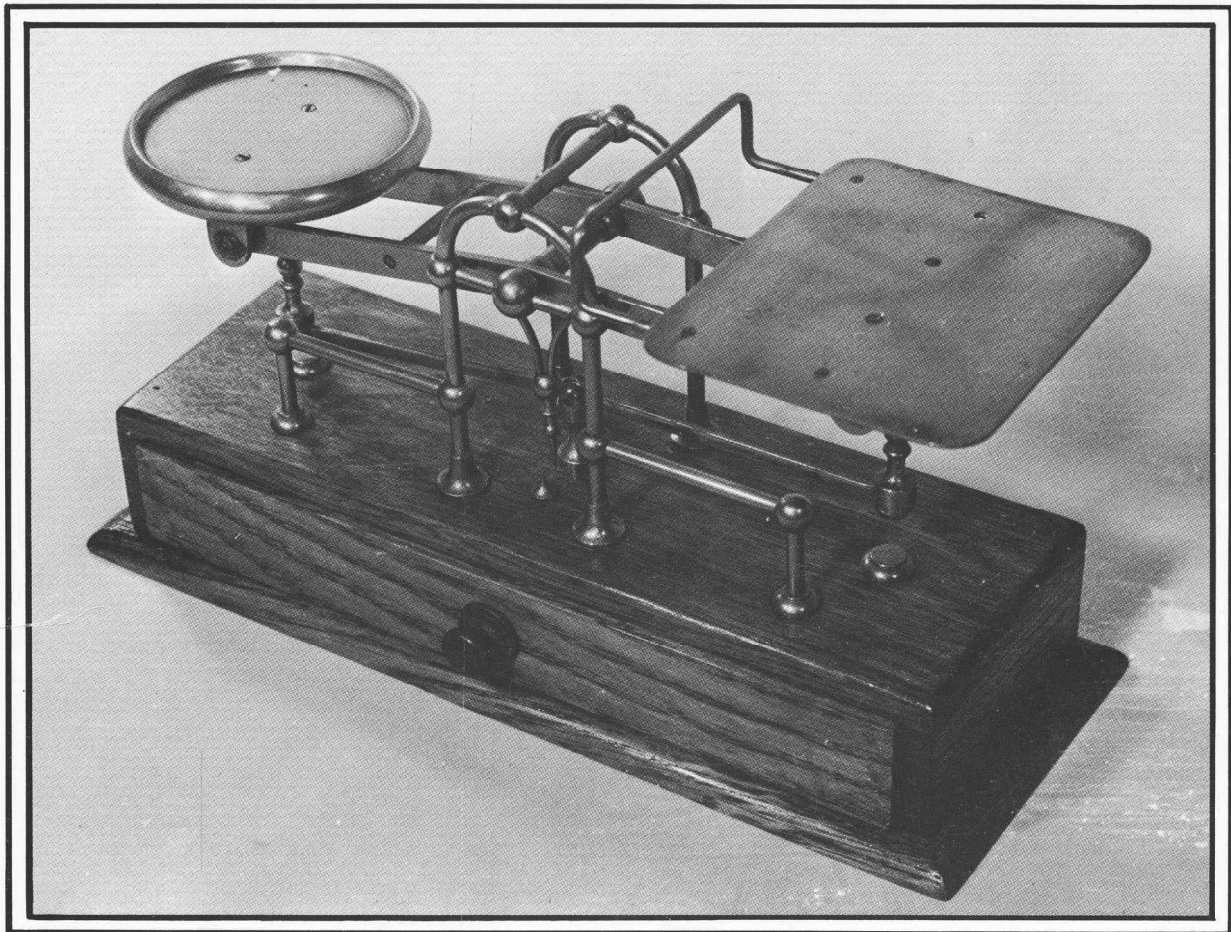


EQUILIBRIUM

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

1989 ISSUE NO. 3

PAGES 1245-1272



PAGE 1246

Cover Picture

This British roberval postal scale has no maker's mark on it to help with dating it. The fashion for honey-coloured oak was particularly prevalent during the 1930s, and the liking for geometric rigidity combined with circles and semi-circles was a feature of product design and architecture during the 1930s also. The fashion was so short-lived that one is tempted to date the scale between 1930 and 1935. This makes this scale the last in the evolution of the roberval postal scale in Britain; any roberval made since that date in Britain has been a copy of a Victorian roberval, and must be considered as bordering on being a deceitful reproduction.

Michael's Thoughts

WHY STEELYARD?

The name steelyard is said to derive from the Steel-yard, the trading centre of the Hanse Merchants, on the banks of the River Thames in London, where scales of the type we now call steelyards were used. However, in the 17th and early 18th century, these instruments were known as stillerds or stilliards, and it seems that only in the second half of the 18th century was the name rationalised to steelyard. The interesting aspect is that professional scalemakers, fully aware of the correct terms for various mechanical types of weighing instrument, were prepared to call the then new spring balances 'pocket-steelyards.' This name was given to both the compression coil type and to the mancur. Could it be that the conventionally claimed derivation of the name steelyard is incorrect? Was it, in fact, derived from an earlier name meaning, perhaps, speedy-weigher, or perhaps convenient-scale? The Roman name statera and the French balance-romaine are of no obvious help, but the German schnellwaage (literally speed-scale,) may be some indication of an earlier name in Anglo-Saxon or Viking of the type postulated. Can you get a friendly etymologist to trace the true origins?

INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

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Weighing in the American Kitchen

GARY S BASCH

After reading M A Crawforth's 'Weighing in the Kitchen' (1) the references to Soyer's and Beeton's precise use of measurements in cooking not only aroused my taste-buds, but also made me curious as to whether a similar phenomenon occurred in the United States at about the same time in history. Soyer's 'Gastronomic Regenerator' was published in 1846 and Beeton's 'Household Management' in 1861.

Several examples of encouraging the precise use of measuring and weighing can readily be found in the States. Dr. William Kitchiner predates Soyer by fourteen years, as in 1832 he states in his introduction to the 'Cook's Oracle':-

'My receipts are the result of experiments carefully made, and accurately and circumstantially related;

The QUANTITIES of the various articles contained in each composition being carefully set down in NUMBER, WEIGHT, and MEASURE.

The WEIGHTS are AVOIRDUPOIS; the MEASURE, LYNE'S graduated glass, ie. a wine-pinte divided into sixteen ounces, and the ounce into eight drams. By a WINE-GLASS is to be understood two ounces liquid measure; by a large or TABLESPOON a half an ounce; by a small TEASPOON, a drachm, or a half of a quarter of an ounce, ie. nearly equal to two drachms avoirdupois.

Imported Gold or Drug Scales.

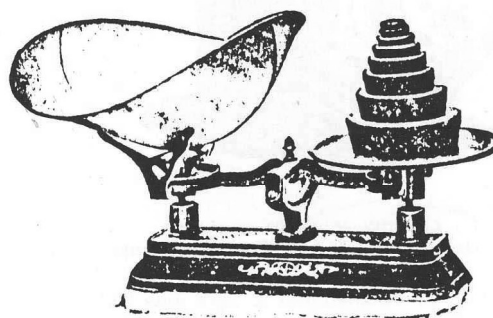
Fig. 1. Fairbanks 1859. Probably imported from Britain. Type commonly used between 1800 and about 1920.



IN OAK OR TIN BOXES.

Description.	Length of beam.	Weights.	Price.
Pans suspended by chains.	8 in.	4 oz. down and dwts. and grns.	\$2.50
Pans suspended by chains.	7	4 " " " " " "	2.00
Pans suspended by cords.	6	dwts. & grns. or scrup. & drms.	1.25
Pans suspended by cords.	5	" " " " " "	1.00

Fig. 2. Fairbanks, 1906. Note that the weights were painted vermillion. Half the price of Commercial Scales- and certainly not accurate enough to satisfy Dr. Kitchiner's exacting standards.



The above Scales are painted vermillion and are well ornamented. They are furnished with weights complete which are painted the same color. These are very excellent Scales for ordinary store or household purposes, are durable and accurate, but are somewhat less expensive than the Trip Scales described on other pages of the Catalogue.



The USER is Slanting

THE above illustration is a fair example of the difficulties and inconveniences people encounter in using an old style scale, which can easily be avoided by using **Triner's Original Slanting Dial Scale**, for it contains many points of superiority over other makes and is rapidly replacing them.

The popularity of the Original Slanting Dial Scale is attested by the increasing sales of them among the trade.



The DIAL is Slanting

ADVANCEMENT is the order of the age, and he who would stay in the front ranks, must keep pace with the world's progress.

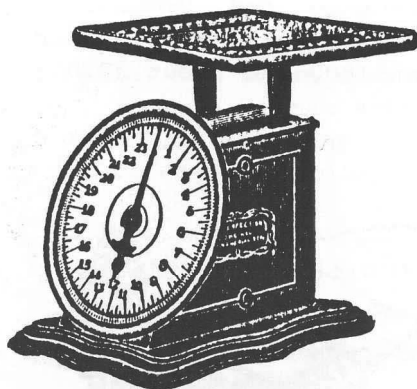
The above scale is the result of twenty years of experience in scale making and we can now truthfully say that it is the most convenient ever invented.

The slanting dial enables you to read the weight with accuracy and ease, without stooping or bending. By a practical test you will find our slanting dial scale has no equal for usefulness, accuracy and durability.

Fig. 3. Triner Scale & Mfg. Co. 1910. Only a third to a tenth of the price of Fairbanks Even Balance Scales, so a very competitive product, & no weights!

Slanting Dial Family Scale

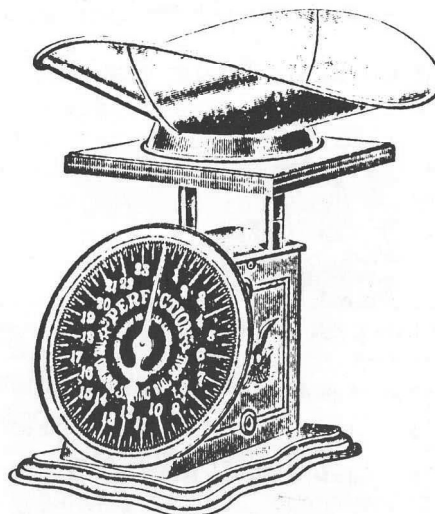
Slanting Dial Family Scales



Capacity, 24 pounds, by ounces.
Also made to weigh 10 kilos, by 25 grams.

No. 24. Silver finished dial, square steel platform. Beautifully enameled in black and artistically decorated with aluminum bronze. List price, - - - each, \$1.50

No. 35. Brass dial, square steel platform. Handsomely black enameled, transferred in gold and striped in vermillion and aluminum bronze. List price, - each, 1.75



Capacity, 24 pounds, by ounces.

No. 301. New Higrade Scale has a solid brass dial, having the figures and marks raised from the solid metal. The dial shows its figures to the best advantage and will last indefinitely. Has a large heavy glazed white tile platform, supported on double steel upright. Equipped with large polished brass scoop with collar. Handsomely finished in aluminum bronze, with vermillion striping and transferred in gold. List price, - - - each, \$3.25

Dr. Kitchiner also emphasises that no serious cook should be without tea and tablespoon measures, which are available at some glass-warehouses. Kitchiner goes on to say that *'this precision has never been attempted in cookery books, but I have found it indispensable from the impossibility of GUESSING the quantities intended by such obscure expressions as have usually been employed for this purpose in former works.....'*

Dr. Kitchiner objects to such terms as: A bit of this; A handful of that; A pinch; A sprinkle; A dust; A shake; A squeeze; A dash; Season to taste; etc. He pokes fun at such culinary curiosities as a turkey in the shape of a foot-ball or a hedgehog; a shoulder of mutton in the shape of a beehive, etc. etc.

Kitchiner also includes a table of weights and measures which is used *'to reduce our culinary operations to as exact a certainty as the nature of the process would admit.'* He also recommends that the cook have as small a weight as a quarter of a dram avoirdupois, or nearly seven grains troy, *'if she wishes to gain credit for accuracy and uniformity...'*

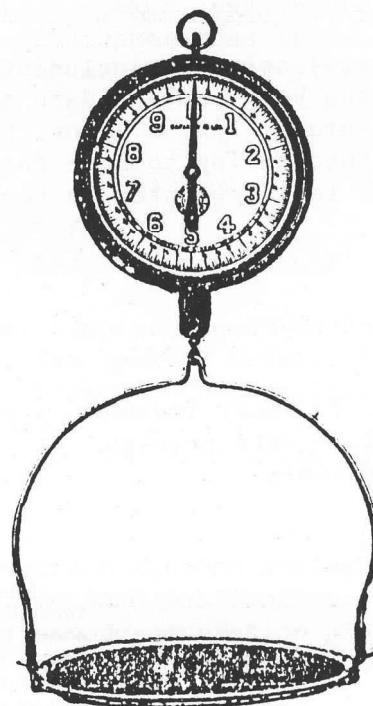
It should be noted that Kitchiner was a medical doctor, which might possibly indicate a carry-over of precision from the scientific to the culinary.

Mrs. Abell published her 'Skillful Housewife's Book' in the United States in the same year, 1846, as Alexis Soyer published his book in Britain. Mrs. Abell (3) in her advice to housewives, includes a chapter in which she recommends various medical remedies. For these various medicines she used precise measurements of all ingredients, for example:- drachms, ounces, quarts, teaspoons, tablespoons, pounds, grains, pints, etc. She also indicates the dose in terms of how much is to be given, and how frequently (usually expressed in terms of hours.)

Fig. 4. John Chatillon & Sons
New York, 1924. Not suitable
for weighing under two oz.
accurately. Below that weight
the housewife would have to
resort to a teaspoon, a
pinch or a shake!

This is one of our latest products, it is light in weight yet strong and durable, is peculiarly well suited to family use. The brilliant plain reading dial is 8 inches in diameter, body of dial is red, a broad white border encircling the red is clearly marked and graduated, the large figures within the body of dial are in gold one inch high.

When not in use the pan can be turned up in a perpendicular position, see page 29, or entirely detached from bows which in turn may be detached from scale and the whole packed away. Furnished also with other styles of containers, see following page.



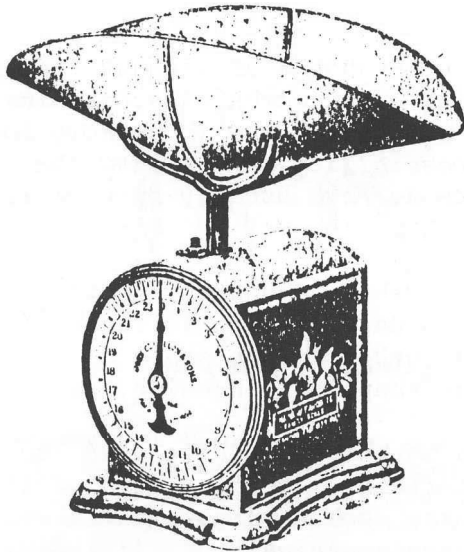


Fig. 5. John Chatillon & Sons, 1924. Another cheap and practical Family Scale, made with many variations of decoration, top plate or pan or scoop.

DIETARY DIAL SCALE

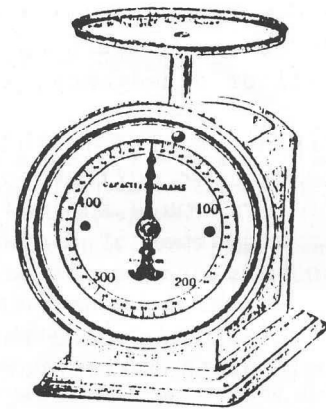


Fig. 6. John Chatillon & Sons, 1924. An early Diet Scale, unusually graduated in grams.

In 1873, Mrs. Ellet published her 'Cyclopedia of Domestic Economy', in which there is a chapter on culinary utensils, with illustrations (4) The author states that *'every kitchen should be provided with a clock to keep the cook to her time... and scales with weights from $\frac{1}{4}$ oz. to 2 lbs. should be placed on the dresser, and the weights carefully kept in regular order. A set of tin measures with small spouts or lips, and with the contents distinctly marked on them, from a gallon down to half a gill, will also be found very convenient. It is likewise well to have a set of wooden measures, from a bushel to a quarter of a peck.'*

Several sources, including Hale in 1839 in 'Good Housekeeper' (5) and Ellet in the book mentioned in the previous paragraph, publish a Table of Weights and Measures (Fig. 8.) for those people who did not have scales and measures. It is interesting to note that in three sources I encountered almost exactly the same table, printed in the same style and order. It is hard to say whether Hale

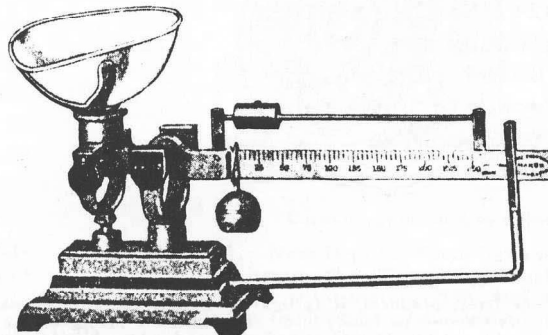


Fig. 7. Henry Troemner, 1941. A very precise diet scale.

Ideal scale for weighing small quantities of food according to physicians' formulas. Beam graduated to 250 Grams by 5-Gram divisions. Tare Beam above Graduated Beam will tare load to 250 grams giving capacity on two beams to 500 grams and on No. 73 avoirdupois to 2 lbs. No loose weights. Stainless Steel Scoop 8" long x 4" wide x 2" deep. Dry foods or liquids can be weighed.

TABLE OF WEIGHTS AND MEASURES.

By which persons not having scales and weights at hand may readily measure the articles wanted to form any receipt, without the trouble of weighing. Allowance to be made for an extraordinary dryness or moisture of the article weighed or measured.

WEIGHT AND MEASURE.

Wheat flour	- - -	one pound is	- - -	one quart.
Indian meal	- - -	one pound, two ounces, is	- - -	one quart.
Butter—when soft	- - -	one pound is	- - -	one quart.
Loaf sugar, broken	- - -	one pound is	- - -	one quart.
White sugar, powdered	- - -	one pound, one ounce, is	- - -	one quart.
Best brown sugar	- - -	one pound, two ounces, is	- - -	one quart.
Eggs	- - -	ten eggs are	- - -	one pound.
Flour	- - -	eight quarts are	- - -	one peck.
Flour	- - -	four pecks are	- - -	one bushel.

LIQUIDS.

Sixteen large table-spoonfuls are	- - -	half a pint.
Eight large table-spoonfuls are	- - -	one gill.
Four large table-spoonfuls are	- - -	half a gill.
Two gills are	- - -	half a pint.
Two pints are	- - -	one quart.
Two quarts are	- - -	one gallon.
A common-sized tumbler holds	- - -	half a pint.
A common-sized wine-glass	- - -	half a gill.
Twentyfive drops are equal to one teaspoonful.		

Fig. 8. An early conversion table. Such tables are still found in American recipe books sold in Britain, as American recipes are in volumetric units while British cooks work in units of weight—either avoirdupois or metric, depending on their age, and what weights they have on their scales.

was the first to include the table, and whether it was her the others copied. In any event, there is definitely some common origin.

It does appear that there was an impetus for precise use of weights and measures in cooking in the United States similar to that in Britain at a related time in history. Quite probably, this phenomenon occurred in other nations as well. One must wonder whether this degree of accuracy was necessary. Both my grandmothers rarely used recipes that were written down. It was always a handful, a pinch, and then season to taste. When my aunt wanted to duplicate a particular recipe, she would stand there while my grandmother cooked, and before a pinch or a handful went into the pot, she made my grandmother toss it onto a piece of paper, and the ingredient was then weighed or measured. It still never tasted exactly the same. Curious... my favorite lemon pie calls for a pinch of salt and butter the size of a walnut!

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2. Kitchiner, William, MD. 'The Cook's Oracle, and Housekeeper's Manual' New York, J & J Harper, 1832.
3. Abell, Mrs. L G 'The Skilful Housewife's Book, or Complete Guide to Domestic Cookery, Taste, Comfort and Economy'. New York, D Newell, 1846.
4. Ellet, Mrs. E F 'The New Cyclopedia of Domestic Economy And Practical Housekeeper', Norwich, Connecticut, 1873.
5. Hale, Mrs. S J 'The Good Housekeeper, or The Way to Live Well While We Live' Boston, Jordan and Co. 1839.

Editor's Note:— As the editor had no pictures of American Kitchen scales to illustrate this article, photo-copies were taken from ISASC publications. The quality leaves a lot to be desired, as with all second-generation photo-copies, so the readers are requested to go back to the ISASC catalogues to see the interesting details.

Pop it in the Post

Part 2

1861 TO THE PRESENT DAY

D F CRAWFORTH

The romantic part of Postal History was covered in Part I, but the prosaic use of the postal system must be considered from 1861 onwards. The battles had been won. The British no longer had to save up to post a letter, they no longer had to plan a journey to reach a Post Office, they did not have to send a messenger to collect their post and they could rely on letters reaching their destination within twenty-four hours in Britain. In other words, they could take the Post Office for granted.

The British did enthuse about letters received from abroad and they carefully collected and catalogued the stamps from the envelopes- therein lay romance in late Victorian times. The stamp albums of the period were works of art, of heavy ivory board, beautifully printed with little maps to show the country of origin of the stamps, and with handsome leather covers.

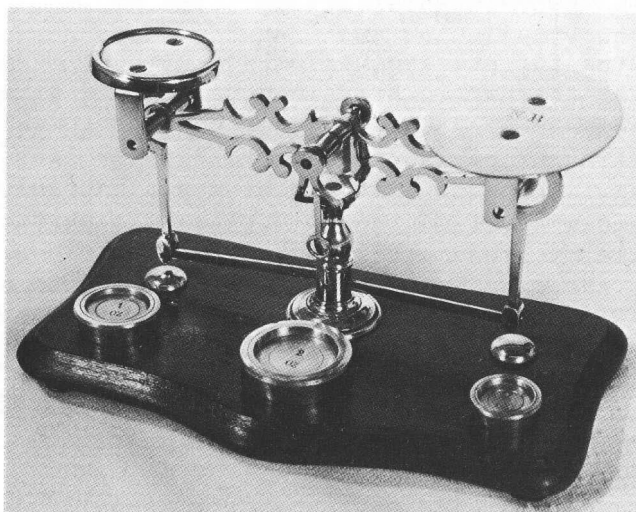


Fig. 1. Classic French roberval made by Narcisse Briaais of Paris for the British market. Weights for 2, 1 & $\frac{1}{2}$ oz. The ornate beam and the pillar instead of an A-frame are very likely to be French.

The scales of the period were basically well-made and remained in production for long runs, with only the postal rates giving a clue as to when they were made. The series of articles "Postal Patents" (started EQM p. 398 and continued in each EQM up to p. 708) covers contemporary ideas on Postal Scales comprehensively, and shows what a large proportion of the ideas were not only made, but continued to be made for considerable periods. It would not be appropriate to illustrate all the variations again, so you are requested to look back for yourselves. It is easy to forget, in the excitement of looking at the novel ideas, that most postal scales used by private individuals were roberval postals made of brass and showing only minor differences. They were in such demand that N Briaais of Paris could export considerable numbers into Britain (Fig. 1).

In 1863 N R Hall patented his simple, flat pendulum balance (Fig. 2) which could be conveniently carried in a pocket, brief-case or travelling compendium. It

sold in large numbers between 1863 and 1876, in various combinations of brass, silver, nickel, gold and blued-steel, in a rectangular or ovoid case made of leather lined with silk or velvet. The clean shape lying on red, blue or green padded silk looked most enticing, especially if the scale was delicately engraved (see EQM p. 428). Parnell, using Hall's patent, made a few to hang on elaborate pillars or held up by an eagle (Fig. 4) but it was the flat ones in cases that produced the profits. Hall developed a second one in 1866 which had two pointers, one pointing to the weight of the letter and one pointing to the cost of postage.

In 1867 J Silvester patented his top-pan spring balance (see EQM p. 455) which was highly successful as a postal scale. It was substantial, unlikely to tip over, good-looking and could be read instantly. Salter's, Silvester's employers, continued to manufacture it for nearly eighty years, with only minor alterations in surface finish (see Fig. 20).

The major competitor to Hall (above) was A E Ragg who patented an equally compact flat pendulum scale in 1871 (Fig. 3). It seems likely that he was taking out the

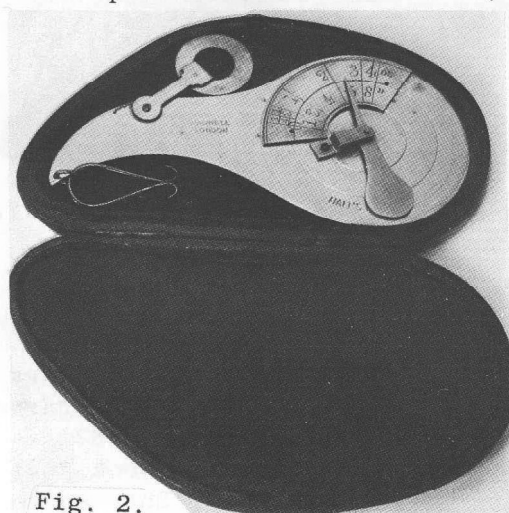


Fig. 2.

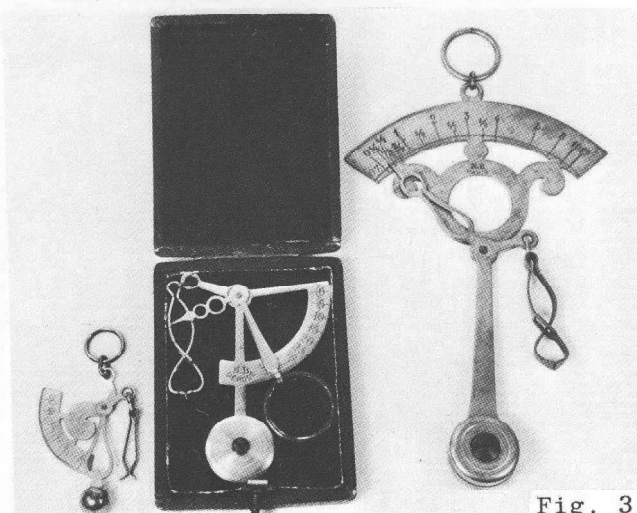


Fig. 3.

Fig. 2. Hall's pendulum scale, patented in 1863 and for postage rates current until 1865. Made by Parnell of London. Gilded brass with nickelled graduation plate, and blued steel letter clip. Case made of mid-blue leather with maroon velvet in the base and padded maroon silk in the lid. Case $5\frac{1}{4}$ ins. long (13cms.)

Fig. 3. Left, a minute pendulum, $1\frac{1}{4}$ ins wide, (3 cms.) made by N Briais of Paris. Nickelled brass, with weight graduations 0-20 (grams) for the French market. His larger pendulum in the middle, under 2 ins. across (4.5 cms), also nickelled brass, 0-50 (grams) for the French market, in black leather case lined with dark purple aniline-dyed velvet. He exported the same scale to Britain marked 0, $\frac{1}{4}$ oz., $\frac{1}{2}$, $\frac{3}{4}$, 1 only, with the name of the retailer Perry and Co, London. Right, also by N. Briais for the British market, to Ragg's patent of 1871, made of nickelled brass, 0-12oz, including for the $\frac{1}{3}$ & $\frac{2}{3}$ oz., needed for the postal arrangements with France between 1869 and 1875, so made 1871-1875, $3\frac{1}{4}$ ins. across (18.5 cms.) He made the same Ragg's patent design with a much lighter weight, 0-4oz. and a looped letter hanger instead of a clip. They were retailed by Jos. Illfelder with 0-12oz., with a letter clip with a small extra loop from which a parcel could be hung.

Fig. 4. Yet another Hall's patent with $\frac{1}{3}$ & $\frac{2}{3}$ oz. graduations and rates 1871-1897, so made between 1871-1875. Gilded eagle on a gilded tree with the pendulum engraved and gilded, and the letter plate delicately engraved with flowers. 7 ins. tall. The only other one seen has a plain pendulum and letter plate.

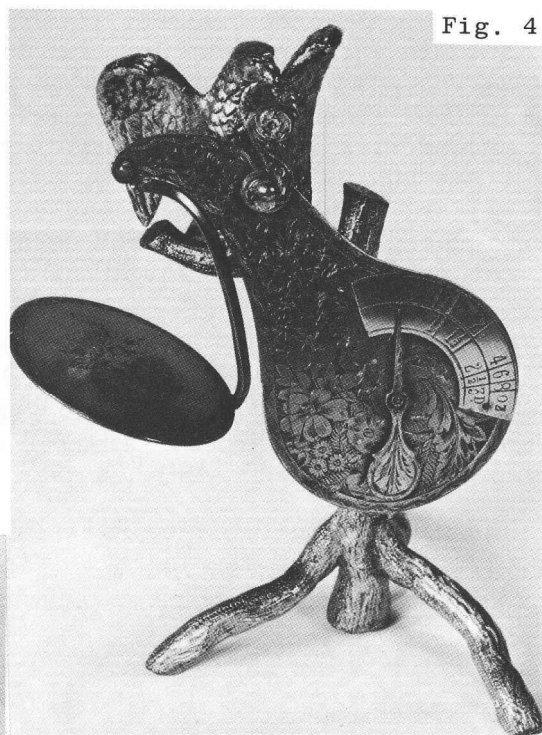


Fig. 4.

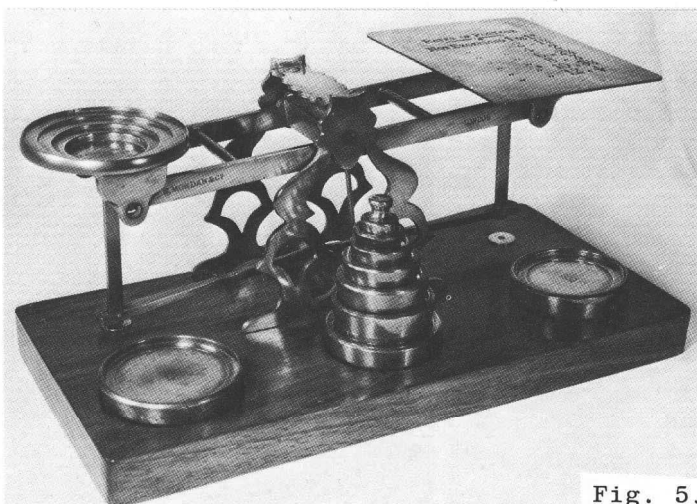


Fig. 5.

Fig.5. S Mordan & Co. large roberval postal scale with their exceptionally numerous weights, for 12, 10, 8, 6, 4, 2, 1, $\frac{1}{2}$ & $\frac{1}{4}$ oz. The bigger weights are cased but the smaller ones are solid. The postal rates were current after 1871 and before 1885. Book Post one $\frac{1}{2}$ penny per 2oz. up to 5lbs. Base 10 ins long, (26 cms.)

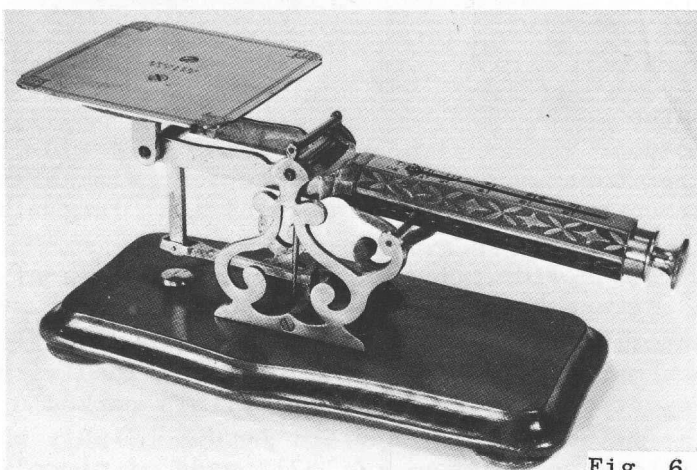


Fig. 6.

Fig. 6. S Turner's Patent telescopic steelyard. No patent was taken out by S T S but G Loughton took out a patent on identical principles in 1871. The postal rates were current from 1871 to 1897. Base 8 ins. long (20 cms.) made of teak.

patent on behalf of N Briais of Paris, who made these scales in considerable numbers, for use on the Continent and for sale in Britain. Briais also made two other designs of postal pendulum, both as effective as Ragg's patent, which he made with gram and ounce graduations, but less than half the size of the Ragg's. (Fig. 3.)

The roberval principle was nearly perfect for postal scales, giving confidence that it actually balanced, providing easy access to the pan, being stable and reliable but weights were dropped, easily lost and had to be added up to ascertain the total. G Loughton took the roberval principle and put it with a telescopic steelyard (Fig. 6) so that the user could read off the weight or the postal rate as soon as he pushed the slide along- no weights to loose and no adding up, but sturdy and handsome. Samuel Turner Senior (STS) made two styles using this patent but not in large numbers.

Marion and Co. (see EQM p. 484) may have made the pendulums on a stand that are found with at least six variations in design, ranging in height from six to fourteen inches tall (15 to 34 cm.) with various graduated faces, various pendulous weights, and usually with a mixture of brass, gilding and nickel on any one scale (Fig. 7 8 and 12). A common feature on their scales was the little brass ball on a rod sticking out at an angle behind the graduation plate, which

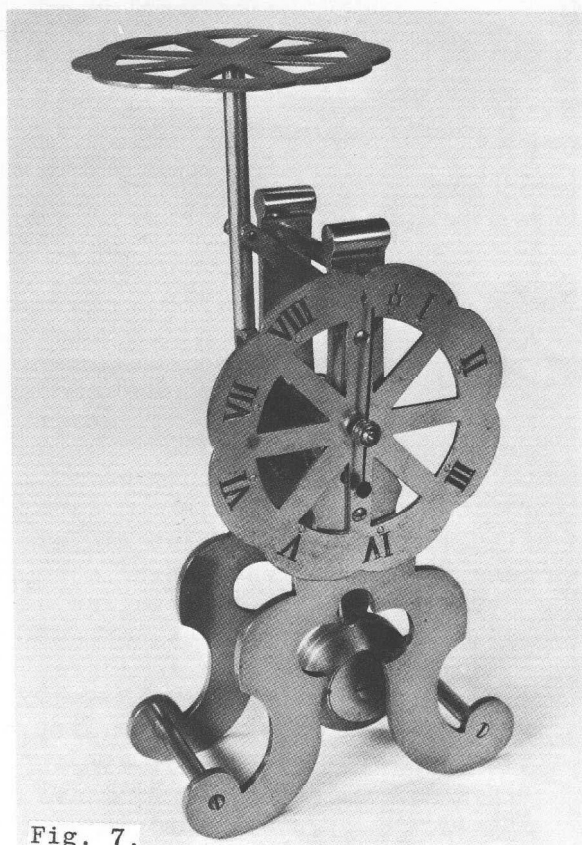


Fig. 7.

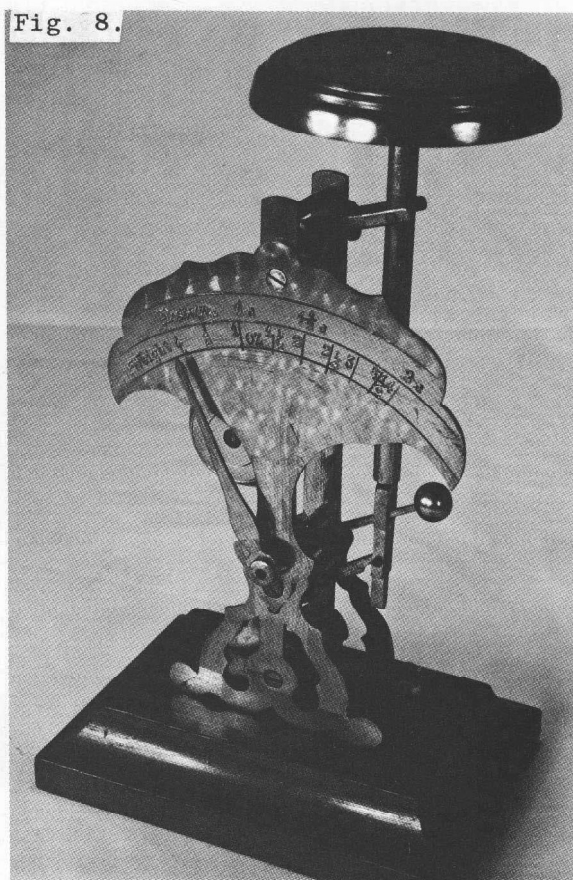


Fig. 8.

Figs. 7 & 8. The skeleton clock design has no maker's mark, but was obviously made by the same maker as Fig. 8, which has a tiny cartouche on the back stamped Marion, London. Auguste Marion had shops in London and Paris between 1844 and 1920, as wholesale and retail stationers and photographic suppliers. He did not take out the patent for these pillar mounted scales- that was taken out by W Hiscock in 1879- but his mark is the most often found on these rare scales. The postage rates were current from 1871-1897. The clock is 8 ins. tall (20 cms.) and Fig. 8 is 7 ins. tall (18 cms.)

Fig. 9.

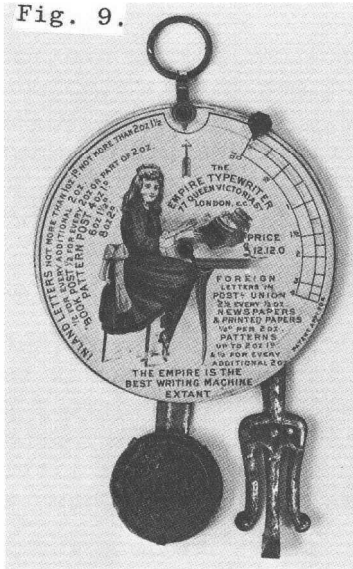


Fig. 9. This delightful enamelled tin pendulum advertises the Empire Typewriter, a company owned by Salter's, the scale company, but this advertisement was not manufactured by them. It refers to the Postal Union which was in force between 1875 and 1906, but the postal rates were only in force between 1871 and 1897, so the scale was produced between 1875 and 1897. The letter to be weighed had to be thin and flexible or it would not slot into the letter clip.

Fig. 10. The first Parcel Post started in 1883 and was superseded in 1886. Several manufacturers produced a special, magnificent scale weighing up to 71b. S Mordan and Co. produced two, the more unusual being this half-roberval and hanging pan, with weights of great diameter, too big for many women to lift with one hand. The smaller weights are stored under the 21b. weight. 4, 2, 11b., 8, 4, 2, 1, $\frac{1}{2}$ oz. 15 ins. wide.(38 cms.)

Fig. 10.



Fig. 11.

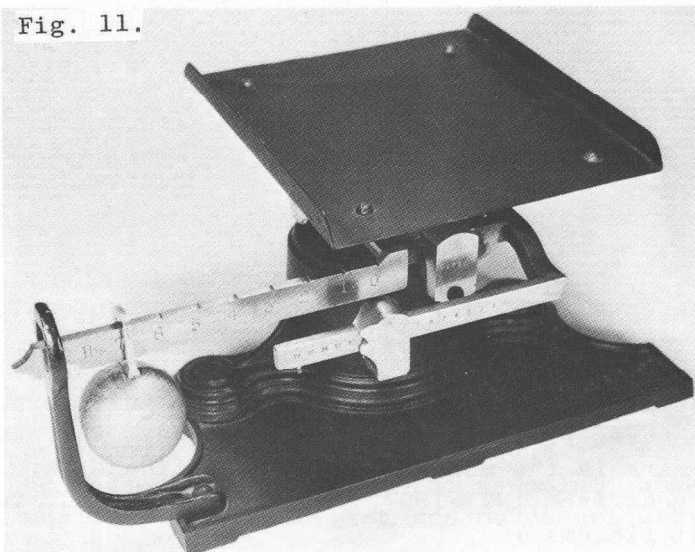


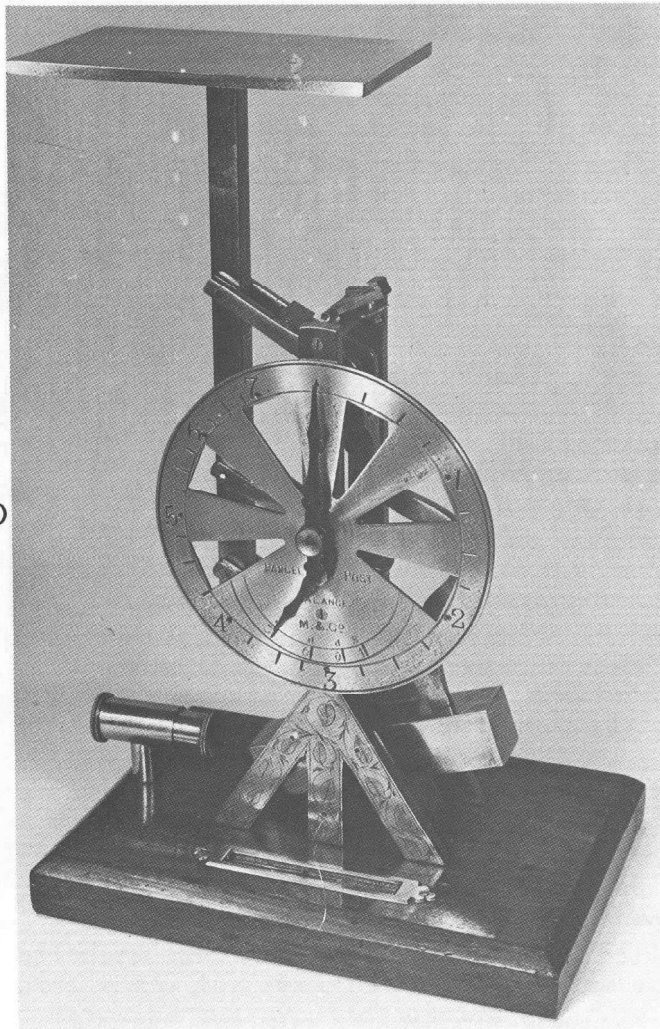
Fig. 11. This rarity was made by Bartlett of Newcastle upon Tyne, with the rear beam for parcels and the front beam for letters. The patent suggests that the adjustment bar underneath can be permanently locked by pouring lead into the cavity above the locking screw, implying that the scale might be checked by a W & M inspector, and thus be suitable for trade use, although that is not claimed. Patent 1883. Width 13 ins. (32 cms.)

transferred the downwards movement of the plate to the rotational movement of the pointer (Fig. 8) All the variations by M and Co. are highly collectable, being difficult to find and all being superbly crafted and delightful to look at. Sometimes a retailer's name was stamped on the back of the scale but M and Co's work is so distinctive that there is never any doubt as to the maker.

Pendulums were so popular during the last third of the 19th. century that many pressed tin ones were used as an advertising medium (Fig. 9) The transfer printing was bright and fresh when new, but quickly deteriorated when handled or scratched. The value now relates to the condition and/or rarity of each, but is usually very high, considering that they were so ephemeral.

Parcels were not carried by the General Post until 1883, so scales prior to that date had a capacity of between 2oz. and 12oz. to weigh only substantial letters. When the Parcel Post started, there was an immediate demand for postal scales with a 7lb. capacity, and several handsome variations were produced. Sampson Mordan made very large robservals, and half-robservals with a hanging pan, with large brass-cased weights, which the hand could only just encompass (Fig. 10).

Fig. 12. W Hiscock anticipated the new Parcel Post with its much heavier loads, by patenting the spring buffer to check the motion of the weight on its return swing. The smaller scales made to his design did not need a spring buffer (see Figs. 7 & 8) The longer pointer points to the weight of the parcel and the shorter pointer points to the price in pennies. Above the longer pointer one can just make out an L shaped piece of metal tipped up to the right, which can be flipped to the left to lock the pillar on which the parcel is placed. The scale is signed M & Co., assumed to be Marion and Co. A spirit-level is set into the wood in front of the scale. Nickelled brass with a gilded face and parcel plate. 13 ins. high (32 cms.)



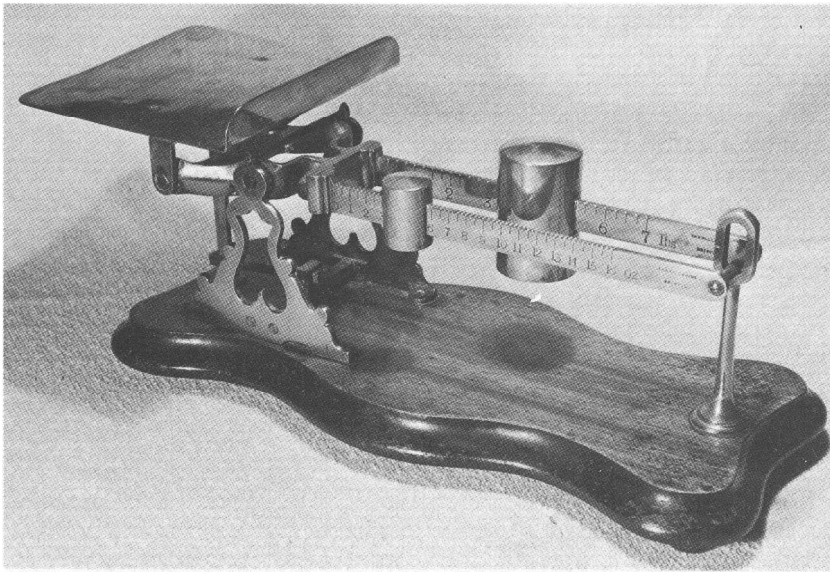

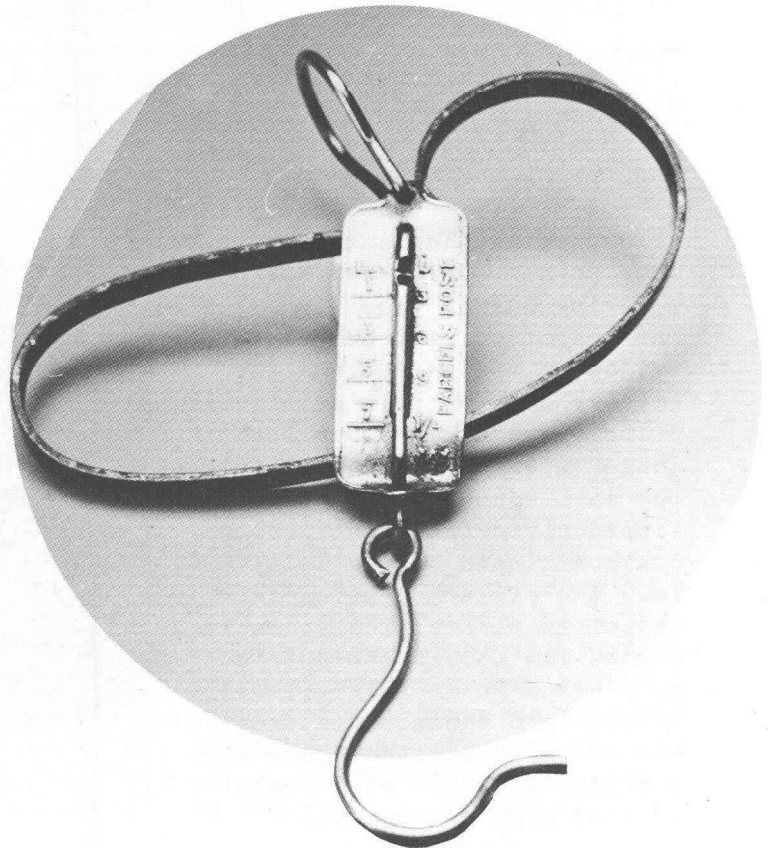


Fig. 13. Made by Parnall and Sons of Bristol, to the design registered in 1883. (Diamond mark with K in the year corner.) Rear beam 0-7lbs. Front beam 0-16oz. Brass & mahogany.

C H Bartlett patented his magnificent parallel-beamed table steelyard (Fig. II) for the new Parcel Post (see EQM p. 537) Marion and Co made their huge pendulum balance with a buffer to stop the extra-large weight from toppling the scales over (Fig. I2). Tozer produced his spring balance with its measuring tape to check the dimensions of the parcel (see EQM p. 537) and Parnall and Sons of Bristol made their parallel-beamed, all brass parcel scale (Fig. I3.)

Fig. 14. A cleverly designed spring which opens when a parcel is put on the hook in such a way that the pointer slides straight down the slot in the face. The maker's mark  has not been identified, but he must have been working during the period 1883-1886, the time when the postage rates were current. 4½ ins wide (10 cms.) Brass with black painted spring.



These firms must have been dismayed when the maximum weight of parcel was raised to 11lb. only three years later, in 1886 (Fig. 19) after they had gone to the expense of making special moulds for the lighter scales.

The 1867 patent taken out by Silvester was manufactured by his employers, Salter's, who identified their scales by putting SALTER on the face until 1884. When the trade-mark system was initiated Salter's were licensed to use the Staffordshire Knot ~~as~~ as their trade mark, and thereafter all their scales had a knot on the face somewhere, (Fig. 15.) Sometimes collectors are pleasantly surprised to find that their conventional spring balance has no knot on it and must therefore be over one hundred years old.

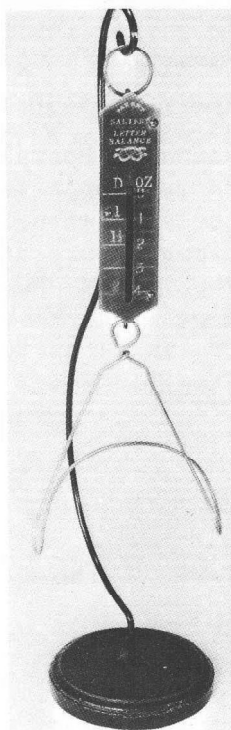


Fig. 15. Letter balance made by Salter's after they had gained permission to use the Staffordshire knot as their trade-mark, in 1884. For postage rates current 1871-1897, so made between 1884 and 1897. The letter hanger is long enough to hold the letter without obscuring the graduation plate. The iron holder is one of several designs made by Salter's to hold any spring balance.

Fig. 16. Left, Gilfillan's patent, 1896, 3 ins. high (7 cms.) but of 16oz. capacity, made of tinned iron sheet, with ivorine plastic graduations, maker Pelouze of Chicago, patented in the USA in 1895, with additional patent protection in Canada, England (sic) France, Belgium & Germany. Middle, a British version of Gilfillan's patent, signed S & D, (Setton & Durwood,) called the Criterion Postal Scale, 0-16oz., made of brass with fine brown leather covering it, gilded decoration, 4 ins. high (10 cms.) Right, stylistically of the late 1920s, with postal rates for 1923-1940, made by Salter's of copper with a brass graduation plate and letter rest, 5½ ins high (14 cms.)

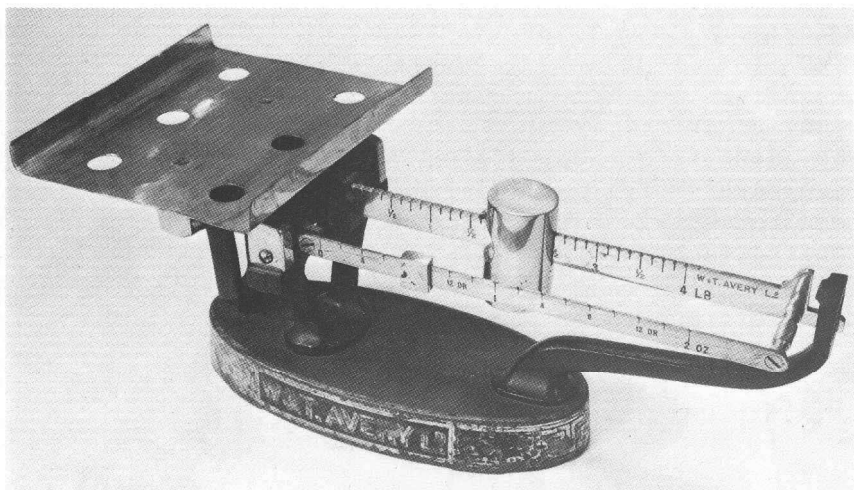


Fig.17. To quote the 1906 catalogue of W & T Avery Ltd.:— Handsome Postal Balance, specially designed for weighing both letters and parcels upon the same machine. This is effected by means of a Double Gun-metal Steelyard with two sliding Poises, one for letters and the other for Parcels, thus superseding Loose Weights, which are so liable to be lost. Handsomely Japanned and Decorated with Gold and with lacquered Brass-work. This Balance is an ornament to an Office, Study, or Writing Desk, and is very suitable for Presents. To weigh up to 4lb. by two-dram divisions. Price.....60/-. For private use. 17 ins. long (43 cms.)

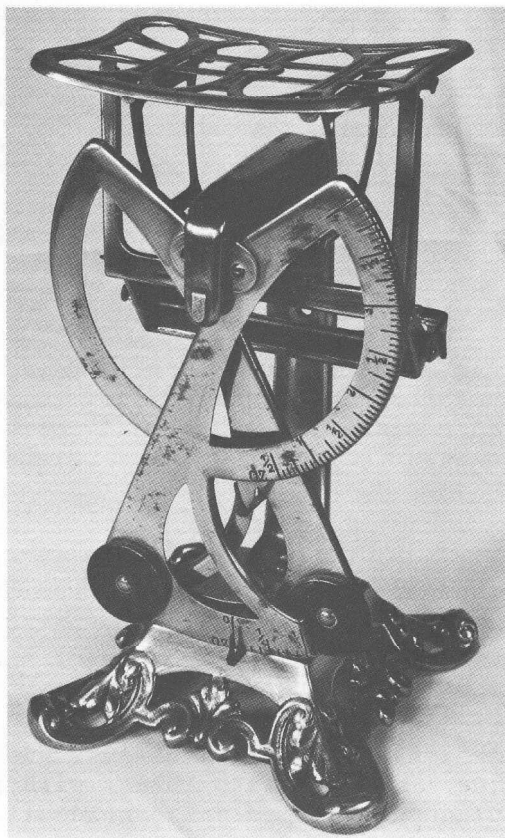


Fig.18. Anonymous bilateral pendulum with Austrian patent number 1766 stamped on the back. Made for the British market. The first patent for a bilateral was taken out in Germany in 1904 by the firm of Automat, using the trade name of Columbus Bilateral. Pressed out of very thin iron sheet coated with brass, with a cast brass base. Lower graduations 0, $\frac{1}{4}$, $\frac{1}{2}$, and upper graduations $\frac{1}{2}$, to 4oz. 7 ins. tall, (18 cms.)

Spring balances were mistrusted in the 19th century by the public, as being unreliable and prone to losing their flexibility. Salter's eventually convinced the populace that they could trust a spring balance, and other manufacturers were able to capitalise on this confidence. In 1896 Gilfillan patented the little bow-front (Fig. 16) with its half-roberval and tension spring, which was cheap, easy to decorate fashionably (Fig. 23) and continued in production until very recently, giving it a production-run nearly as long as Hall's patent (see EQM p. 623). Many manufacturers made or retailed these rather flimsy scales, including Pelouse, Myers and Co., Tiffany, Setton and Durward, I.D.L., Kingsbury Manufacturing Co. and Salter's, with a great variety of covers.

Massive springs were used by Emil Ubrig in his rugged 'candlestick' with half-roberval, a few of which were exported to Britain, with an 11lb. capacity (see EQM p. 623.) from 1897 onwards.

Another foreign manufacturer of spring balances who tried to break into the British market was J M Triner of the USA. He patented his tilt-faced spring



Fig. 19. Anonymous parcel scale made for the 1895-1906 parcel rate and for the 1897-1915 letter rate, so made between 1897 and 1906. Although the weights fit the holes in the wooden base very well, they are probably replacements, as these iron weights were made by A K & Sons (Alexander Kenrick and Sons,) for trade use normally. The maker of these central-pillared robervals has not yet been identified and may possibly have been French, looking at the style.

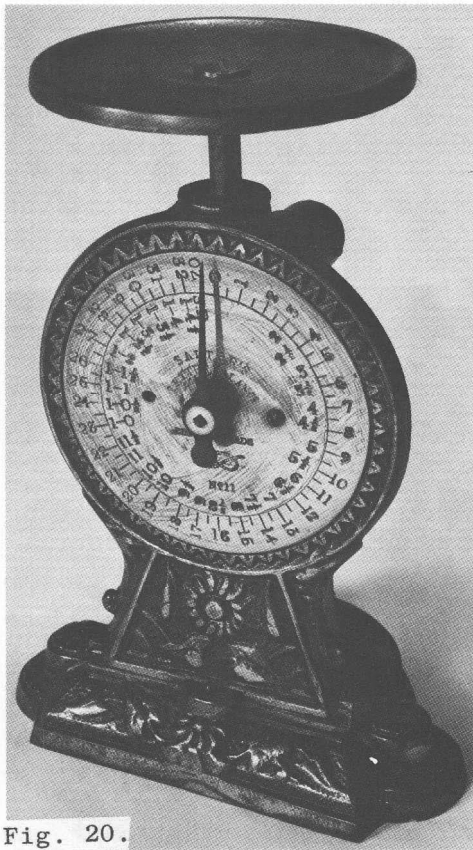


Fig. 20.

Fig. 20. Silvester's patent of 1867, still a popular and practical spring balance in 1920. Salter's must have been irritated by the Post Office's changing the rate again in 1922, so making the face obsolete in only two years. Cast iron base with a bronze finish, rubbed with copper high-lights. Brass face concealing two vertical springs, and a half roberval system. 0-32 oz. 2 d. up to $1\frac{1}{4}$ d. 7 ins. high (18 cms.)

Fig. 21. Anonymous bow-front screwed to heavy glass base. Two ink wells for black & red ink, commonly used by keepers of accounts. No date, but the bulbous shape suggests the 1930s.

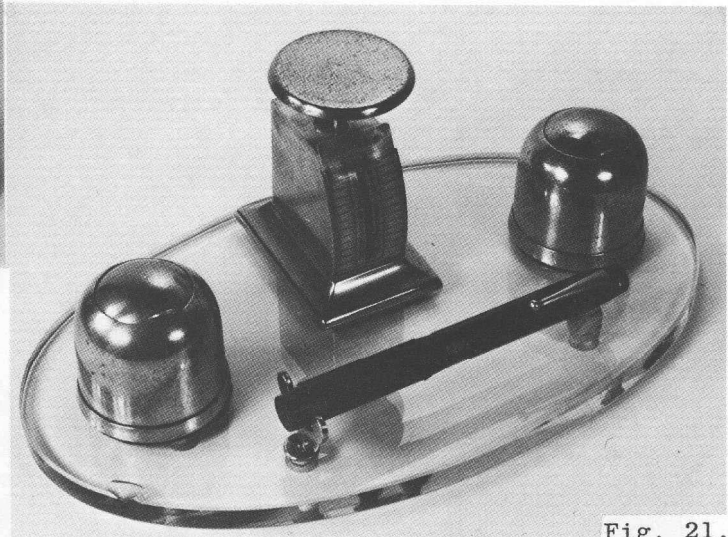


Fig. 21.

balance in Britain in 1904, but none for the British market has been seen by the author (see EQM p. 651). Triner probably underestimated the intense competition he would meet from the bow-front makers and from all the single and bilateral pendulum postal makers (Fig. 17).

A small but steady demand continued for parcel scales. Avery's had parcel scales available from 1883 onwards, and had a handsome parallel-beamed one in their 1906 catalogue (Fig. 17.). Salter's tended to stick to a few well-tried designs for year after year, as with their 1867 top-pan design (Fig. 20) still in production in 1922, their bow-front and their plastic-fronted spring balance in a leather pouch (Fig. 22).

New designs continued to appear after 1925, rarely handsome, usually utilitarian and sometimes of very low quality. "Pencil" designs had started in 1842 and new variations were still appearing in 1942, of steadily declining standard of materials and workmanship (Fig. 22). There was some excuse for poor quality

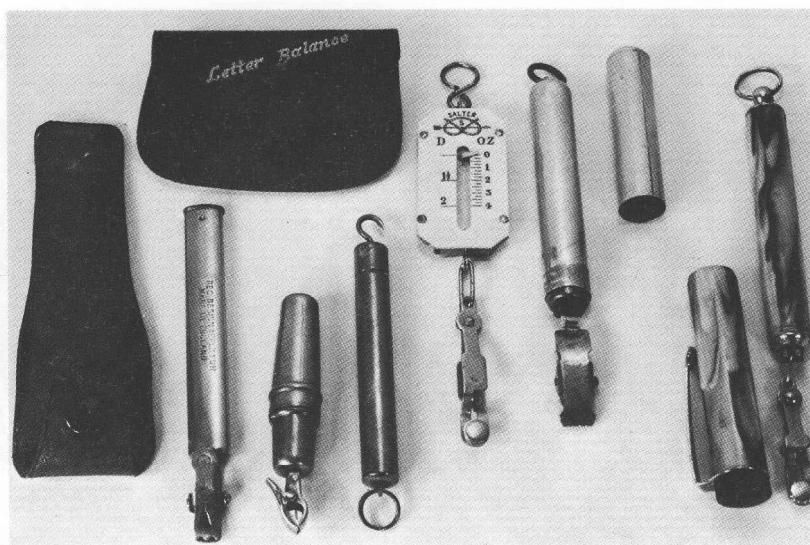


Fig. 22 . Left to right- Nickelled brass, protected by leather pouch with a bulge to accommodate clip, no maker's mark, 0-4oz. Anonymous nickelled brass, cap missing, 0-5oz. Brass, dual purpose, split ring to hold letter, hook to hold parcel or fish, 0-12oz., no name. Imitation ivory, plastic face, Salter's; made throughout 20th century with appropriate postal rates, leather or plastic pouch with various gilded words, often a pun, rate for 1923-1940. Nickelled brass, anonymous, 0-16oz. Marbled plastic, Salter, England, 0-8oz., 0-4d.= 1940-1952. Compare these plain spring balances with the silver or silver-plate pencil compendiums made by Sheldon and Mordan during the 19th century.

Fig. 23. Economy was a major selling point during the Depression of the 1930s. As with the third one in Fig. 22, it is dual-purpose, this time for eggs or letters. Weights for 2, 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$ oz. Length 7 ins (18 cms.)

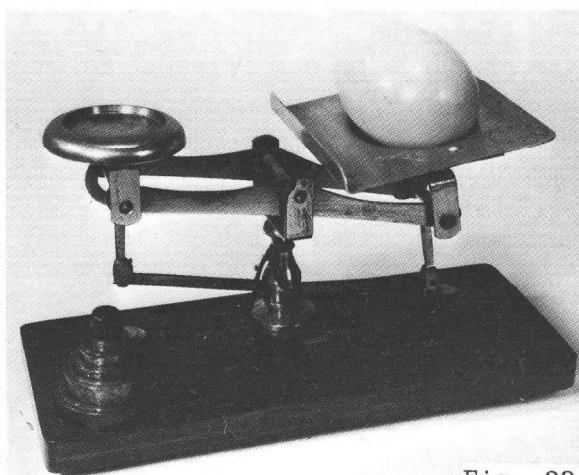


Fig. 23.

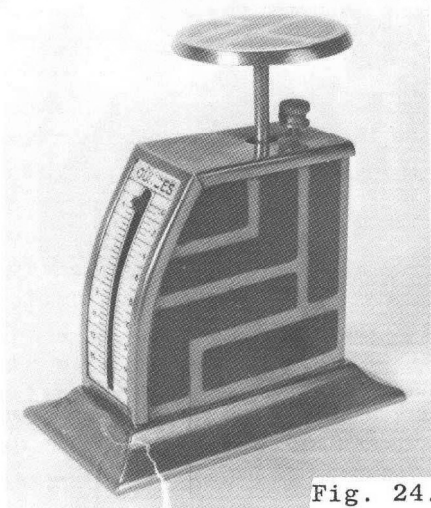
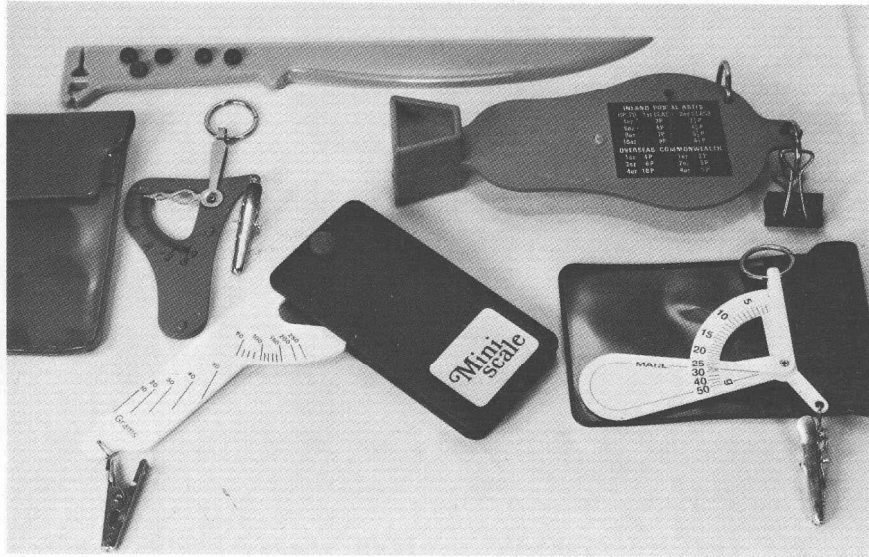


Fig. 24.

Fig. 24. Anonymous bow-front of exceptional quality for the 1930s. Nickelled brass, beautifully enamelled with blue Art-Deco decoration. No postal rates.

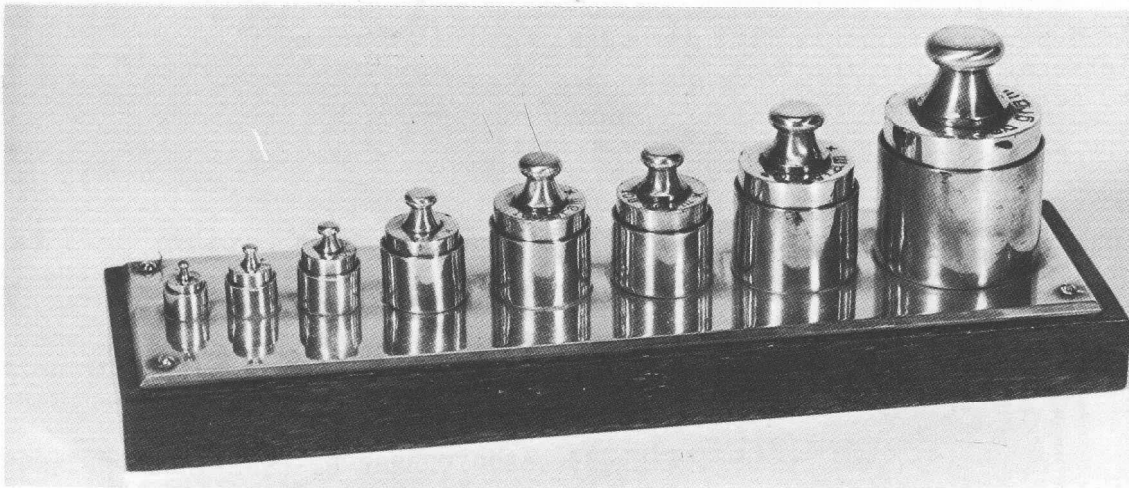
Fig. 25. Five scales bought between 1975 & 1985. Top left- a bismar with swiveling buttons to pinch between finger and thumb. Top right- a turquoise plastic pendulum for the last year of oz. units in Britain. Three of the most elegant metal pendulums, for use in Britain & on the Continent since the change to metric units in 1975.



between 1939 and 1953, when the Second World War and its aftermath caused a shortage of materials, man-power and factory space, but the decline started well before World War II.

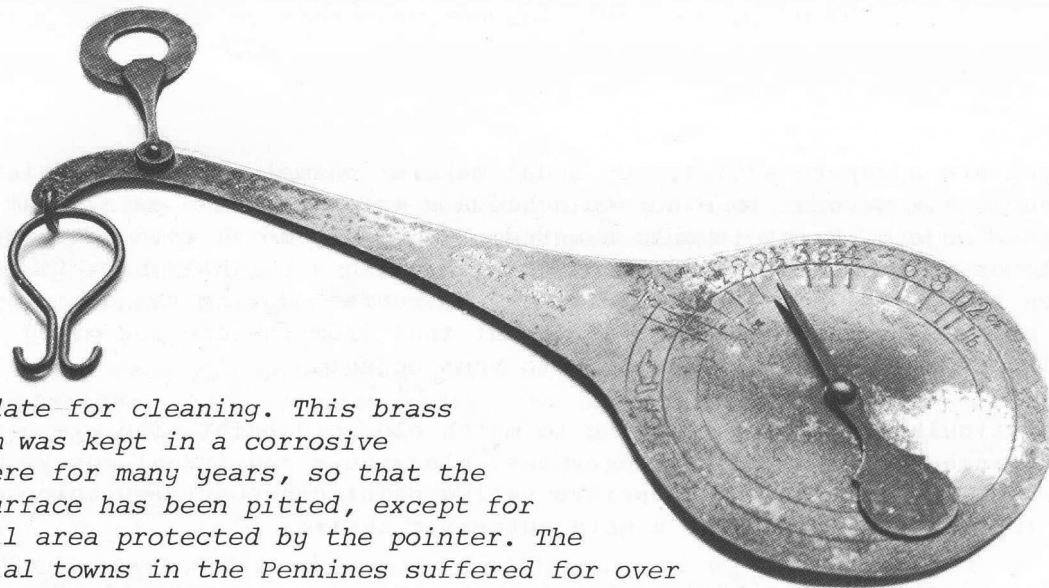
After 1975 a new demand for little postal scales meant a resurgence of pendulum scales, but this time commonly made of vividly coloured plastic with letter clips made from adapted paper-clips or fasteners (Fig. 25) We could have beautiful modern postal scales but perhaps we prefer to go to an antique shop and buy an elegant Victorian postal scale. This gets pride of place in the living room, and demonstrates to our friends our good-taste and our culture without our saying a word!

Showcase



Brass weights for 500, 200, 100, 100, 50, 20, 10, and 5 grams. Wood base, brass plate, copper holder. H stamp for 'Haagse Balansen en gewichtenfabriek,' for use in schools.

Lou Uit Den Boogaard



A candidate for cleaning. This brass pendulum was kept in a corrosive atmosphere for many years, so that the whole surface has been pitted, except for the small area protected by the pointer. The industrial towns in the Pennines suffered for over a hundred years from this intensely damaging pollution, and many metal antiques from those towns cannot be satisfactorily restored.

To Clean or Not To Clean

Part 3

Michael Crawforth

PAINTED IRON

Another difficult subject to tackle. In my opinion, nothing looks worse than fresh paint on an old scale- the two contradict each other. Amateur lettering and decoration is especially offensive, as it takes the professional painter years of full-time practice to develop the flowing, confident, continuous lines of his brush strokes. You will see the amateurs' slightly jerky, wavering lines, however carefully applied, from twenty yards away and be reminded of barge- painting, gypsy- painting or your late aunt's daubs. Do not attempt to retouch or repaint unless you want to reduce the value and spoil the history of your object. Accept that age has caused paint and colour to be lost, and be grateful for what remains.

You can improve dilapidated paint by gentle washing in dish-washing liquid, rinsing in clean water and then drying in a warm atmosphere very thoroughly.

You can strip off the top layer of paint by using T-cut, or a proprietary brand of paint freshener (sold by car-repair shops to freshen up old cars.) This is a drastic measure and needs to be preceded by an experimental rub in an unobtrusive place. Don't do what I did- I rubbed straight across the top of a painted tin box and immediately removed all traces of the picture! Not a happy memory. When the paint looks a little brighter, rub with wax polish to preserve the glow.

If the object is chipped, the chips may be gently camouflaged by rubbing on a little matching paint using a cloth wrapped round your finger. This reduces the eye-catching quality of the chips. It does not look gleamingly new, and is sufficiently matt to blend with the old paint.

If you are a superb artist, buy model makers' enamel paints or artists' oil colours. Mix several together to achieve a match with the paint that remains on your object. Paint it onto a scrap of the same metal with the same finish on it as your object has (say, black paint with a slightly matt finish,) and leave it to dry. Some colours rise to the surface during the drying process and give the paint, when dry, a different tone from the one you mixed. If it still matches, paint delicately onto your object.

Be particularly wary when trying to match old gold paint. The eye picks up differences in whiteness, orangeyness, glossiness and translucency. Some under-painting with an appropriate yellow paint can sometimes help to give the top coat of gold paint a more authentic lustre.

If an object was originally painted, but virtually no paint is left, then the object is unprotected and must be repainted. Dismantle the object, until you find an area of good colour to guide you in mixing new paint. Do not remove the old paint until you have tested the colour match, (as mentioned in the paragraph before last.) Use paint-stripper to get rid of old scraps of paint, checking the corners carefully for a build-up of old accretions. Deal with rust, (see the section on iron and steel.) Apply new paint with a soft, fine bristle brush, as sold by artists' supplies shops or in model shops. When it is dry, apply at least one more coat. The original object probably had four coats on it.

When it is absolutely dry and hard, the 'aging' process must be imitated. Remove the glossy newness with fine wire wool dipped in wax polish. Difficult concave shapes can be dulled with liquid abrasive metal polish on a cotton-bud, (used normally to clean the ears of babies.) Wash and rinse well afterwards. Then rub the corners bare, as if the object has had years of handling. The eye can almost be deceived by all this distressing!

N.B. Remember that these distressing techniques are used to good effect by the men who make reproductions. They too want you to believe that the reproduction has had years of use!

Occasionally one is seduced into buying an object that has recently been painted by an antique dealer or previous owner. It is well worth attempting to use paint stripper to remove the repaint only. Often the new paint is only lightly adhering to the old, hard paint underneath, and you might get a lovely surprise when you strip off the new paint. We have found painted ornamentation hidden under new, glossy black paint. We have found the maker's name and address, and we have found unexpected colours under a bland exterior. We even found Samuel Read, the scale maker to the Royal Family, under a heavy layer of modern paint. If the dealer had known that the date 1773 was hidden under that layer, we would have had to pay considerably more for that magnificent scale. Luckily he did not have X-ray eyes.

Use the least violent paint stripper that will shift the new paint, starting by trying white spirit, then try methylated spirits, then acetone, then a proprietary stripper and finishing up with a really virulent stripper used to clean dried-out paint brushes. Wipe on briefly and rinse off quickly, however mild you think the product is. The aim is to shift only the top layer and to leave lower layers as little damaged as possible.

Black finishes are difficult to simulate. Glossy black paint from the model makers' supply shop is too shiny, whereas matt black is too 'dead'. To get a compromise, use matt black paint and when it is truly dry, polish it with black shoe polish. This gives an attractive lustrous finish.

Matting agent from the model shop gives a matt finish to any colour made by that manufacturer, but, as with black, the object must be polished with shoe polish of the appropriate colour.

OVAL JAPANNED BOXES

99% of these boxes are hard, oven-cured japanning, but about 1% have an air-cured finish which dissolves in liquid abrasive polish. Be particularly cautious with boxes that have a red crackle finish under the black, or that were made after about 1830. Test your box underneath where it will not show.

If the liquid abrasive polish, rubbed on with a finger wrapped in a very soft cloth, does not improve the colour, you may get better results with T-cut. Obviously, a second test for the attacking qualities of the cleaner is essential, as proprietary paint fresheners have strong chemicals in them that could do irreparable damage to your box. Rub on with a soft cloth, rinse and dry the box, then polish with plain wax polish.

Rusty patches are a major problem with japanned boxes. Virtually all of them have some damage from rust, which has to be accepted as part of the history of the box. Phosphoric acid, applied very carefully to the rusty patches, will neutralise the active rust, using a cotton-bud, (as used to clean out the ears of babies,) and doing your best not to get acid on the japanning. Rinse well with clean water, dry gently and thoroughly, and protect with wax polish.

WOOD

The attraction of wood is mainly in its surface finish, which glows subtly with warm colour after many years exposure to light, wax polish and 'elbow grease', (vigorous rubbing.)

Never try to strip and refinish wood. This exposes a NEW layer of wood, which has never been subjected to light, polish or the aging process, and the human eye will always notice a new finish, however clever one is with stains, dyes or polishes.

Leave the history of the wood showing;- cigarette burns, ink stains, or bruises show where it was used. The appearance of the scale can be improved by judicious lessening of their impact, using the standard furniture restoration products.

Treat woodworm before you take the scale into the house;- there is no point in presenting the flying bugs with another feast in your furniture. Use the odourless fluid, in a can with a nozzle, so that you can squirt every hole methodically. Put the wood into a polythene bag, seal it and put it aside for twenty-four hours. Do not let your pets breathe the fumes from the fluid, as these fluids damage the organs and can kill.

When the woodworm are dead, clean the surface with luke-warm water with a little vinegar in it, (approximately $\frac{1}{2}$ a cup of vinegar in one pint of water, or 60ml. in $\frac{1}{2}$ a litre of water,) using a damp cloth squeezed out in the mixture. Rub the dirty areas vigorously. Rinse in clean water, dry with a soft cloth and put in a warm place to finish drying.

Rub wax polish onto a hidden area to see whether you need to apply anything other than polish. You should not need anything except hard rubbing, but if the wood looks very pale or grey, revive it with very diluted wood stain, (using a water-based stain, not a spirit-based stain. The spirit-based ones are too easy to apply badly, thus ruining your wood.) Rub down the raised grain when it is dry, and apply wax polish.

Revive varnish with a cloth and old-fashioned varnish, rubbing the damaged area with a finger wrapped in the cloth. This gives a slightly matt finish, which should blend unobtrusively with the old, worn varnish.

NEW WOOD OR WOOD THAT HAS BEEN STRIPPED

Apply wood dye evenly and dry it. Darken areas hidden away under the scale using a darker dye or black aniline dye powder, to simulate dirty corners. Wax polish the wood.

N.B. Before dying you might take the opportunity to check that the profile of the piece is correct. Many replacement bases shout that they are modern by having the wrong moulding plane used along their edges. Have the correct-sized studs made for the roberval stays to knock against, and don't settle for new drawing-pin heads. Old shop scales have usually had their weights dropped onto the wood many times, leaving bruises along the front edge of the wood.

LEATHER

Neglected leather may have dried out and gone powdery. Soak it with 'leather food', as sold in antiquarian book shops or suppliers of horse riding equipment. Keep the leather slightly warm for twenty-four hours and give the leather a second feed. Repeat the warming for another forty-eight hours and check the leather to see whether its resilience has recovered. Once I had to give a third feed to a particularly dry piece, but I was a bit worried that the leather would get a sticky surface, and it did take some days for the third feed to soak in properly.

Restore colour to areas that have been faded by sunlight or where the surface has been roughened by finger-nails, using renovating polish, as sold in good quality shoe shops. Avoid any cream or polish that contains silicone. Buy the polish which most nearly matches the colour you are aiming for, and do not be tempted to settle for a clear, colourless polish.

If you have got coloured polish on to tooling or gilded decoration, remove the polish from the gold using a wooden toothpick or cocktail stick or a sharpened match. Dull the point by rubbing it on a hard surface, so that you do not scratch the gold or lift it off the leather.

PLASTIC

Bakelite and other mottled, coloured plastics, which have a hard finish, can be treated in the same way as oval japanned tins. After the paint freshener has been applied, polish the surface with fine jewellers' rouge or polishing soap, and wax polish applied.

SHAGREEN / FISHSKIN : BLACK FINISH ONLY

The little nodules all over the surface are the cured scales of the fish and are extremely tough and hard, but do tend to collect a horrible encrustation of old dirt, sweetened coffee gunge, sealing-wax and assorted dollops of unidentified nastiness. Do not despair. Remove all loose dirt with a dry, old tooth-brush, then get a magnifying lens, your favourite companion or your favourite music, and settle down for a most satisfying evening. Pick out round each nodule with a steel pin, working slowly and methodically. You may be surprised at the depth between each nodule when two hundred years of dirt has been removed.

Revive the colour using black renovating polish, as sold in shoe shops. Do avoid silicones and spray on products.

SHAGREEN / FISHSKIN : POLISHED SKIN

The mosaic of tiny circles are the bottoms of each nodule referred to above. The nodules have been filed flat, dyed and polished. Because the boxes are so valuable, I have never had the courage to experiment with renovating the colour, although I have been tempted, when sunlight has faded it. I have contented myself with a gentle wash, dry and wax polish.

CARDBOARD BOXES

These boxes have frequently been damaged by dealers who have put sticky labels in prominent positions, and great patience is needed to resist the temptation to rip them off quickly. Take them home, put on the kettle and very gently steam the offending label. Wear rubber gloves to protect yourself from the scalding steam, and lift one corner of the label gently to allow the steam to warm the glue underneath. I use tweezers to lift the paper as I can be more delicate with them, although I have trouble preventing the soggy paper from tearing.

I use the same technique to remove sticky tape which has so often been wrapped round damaged boxes. When the glue alone is adhering to the box, start experimenting with solvents to remove the glue. Usually, white spirit or methylated spirit will wipe off the glue without damaging the paper underneath.

For areas where the paper/cardboard has separated into its constituent laminations, I insert PVA wood glue, (called Evostick Resin W in Britain.) The glue can be pushed into the cracks on a cocktail stick or on a 'finger' of paper. Wipe off the excess immediately. Fold a trimming of polythene sheet over the glued area and compress with a little clamp which has flat jaws. If you have to resort to a bulldog clip, put a strong bit of cardboard each side of the repair, to prevent the clip from digging into the card of the box.

If the edges are very scuffed and fibrous, as may occur round the open end of a cap-end case, it may be necessary to reconstitute the edge with the same PVA glue and judicious clamping or pinching.

Torn corners may need to be strengthened to prevent the scale or weights from escaping through the gap. Old-fashioned brown gummed paper, stuck on the inside of the box, will prevent escape.

Do not use modern self-adhesive tapes, such as 3M's and Sellotape. They shrink eventually, darken to a nasty brown colour and stop adhering.

CLEANING TRADE-LABELS.

Use a very soft art rubber, with lots of tiny pills of rubber sprinkled over the label. Make these pills by rubbing the rubber, (eraser in the USA,) on a sheet of clean paper. Roll and rub these pills over the surface of the label with your rubber, without allowing the pills to get hot. If they get a bit dirty, shake them off and start with a clean batch of pills. Do not work too hard on any one area of the label, as it is too easy to polish the paper, and ingrain the dirt, rather than remove it.

In Britain, it is sometimes said that pills of bread do a good job of cleaning paper, but I don't recommend this idea, as modern bread may have small amounts of fat in it, and be too moist to use effectively.

If some idiot has varnished your trade-label, accept it as part of its life-history and do not attempt to remove the nasty, brown gunge. You might take the box to a sophisticated photo-copying machine and get a copy of the label. The 'colour background eliminator' button might give you a much clearer record of what the original was like. Keep this clear copy in the box for reference, loose, not glued in. Alternatively, beg a clear copy from another collector who is fortunate enough to have a clean label in his box.

Hints

REMOVING SELF-ADHESIVE LABELS FROM SILK OR LEATHER

Soak the label with white spirit for a few minutes to allow penetration of the paper, then very gently, peel the offending label off. If any glue remains, remove it slowly with a clean cloth, trying to avoid tearing delicate silk.

REMOVING TRADE-LABELS

This is a risky business, as it is all too easy to tear the label. It should only be attempted if the wood behind it has split badly and needs repairing. Use the technique described under 'Cardboard Boxes' to remove dealers' price labels. Dry the label on clean glass, with the gluey side uppermost. When the box has been repaired, glue the label back with water-soluble glue, as sold in stationery shops. Do not use a polymer-based product, which cannot be steamed off again.

OBSTINATE SCREWS

Clean out the slot in each screw first.

A range of screw-drivers of various widths to go right across the slot of the screws is essential, to apply maximum leverage with the minimum risk of damage to the slot. The blade of the screw-driver used must be the correct thickness to fit in the slot neatly, without any sloppiness, or again, damage may be caused. Modern screw-drivers often have blades which are too thick for old screws, and if you cannot obtain old screw-drivers, it may be necessary to file or grind down a modern one to fit snugly into the slot.

Most screws can be loosened by alternately tightening and loosening the screw until the loosening process gets easier. This worrying process must be done with a correct-sized screw-driver being pushed firmly and vertically down into the screw slot.

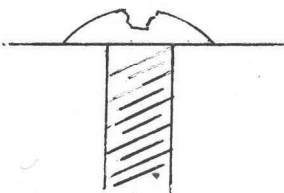
If the screw has rusted in, gently tap the handle of the screw-driver with a hammer. Do this about six times then start to worry the screw tighter and looser again. If this does not shift the screw in a wood base, use the drilling out method described below, but if it is screwed into metal, apply penetrating oil and leave it to soak down for twenty-four hours. Worry the screw again.

If this fails, and heat can be applied without damaging the object, then heat the screw-head with a gas-torch. Before it goes cold apply more penetrating oil, being careful not to apply the oil when the metal is so hot that the oil burns off. Allow it to go cold and start the worrying process again.

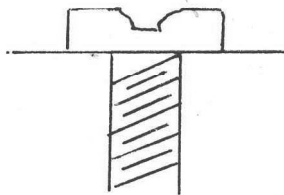
Sometimes all the screws come loose except for one. Try putting your leverage on the object rather than the screw. Turn the object backwards and forwards worrying it until it loosens.

If a deeply-domed screw or a cheese-head screw has been damaged, it may be possible to deepen the slot by using a saw.

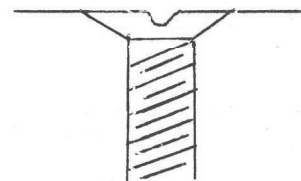
Dome-head's slots
can be re-cut



Cheese-head's slots
can be re-cut



Counter-sunk slots
cannot be re-cut



Sometimes the screw-head has been damaged or broken off, or is inaccessible and has to be drilled out. Buy a stud-extractor, drill a hole one-third of the diameter of the screw-head, and twist out the old screw.

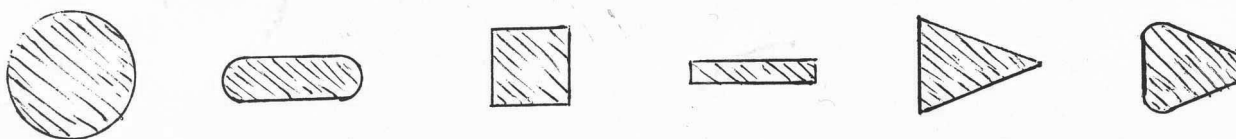
Alternatively, if you have a set of taps and dies, drill out the old screw with a drill-bit two-thirds of the diameter of the screw-head, re-thread the hole for a bigger screw and darken the head of a new screw to match the surviving screws.

Cleaning Products

White spirit: a light, volatile petroleum hydrocarbon, with a boiling point between 150-200 C. Used as a cleaning agent for many substances including oil-based products.

Methylated spirits: an alcohol, artificially coloured and flavoured to make it unpleasant to drink. Used as a fuel and as a cleaner.

Cloths: fabric made of cotton or silk. Knitted cottons which have been washed numerous times, are particularly soft and absorbent. Avoid artificial fibres because they are too harsh and abrasive, and tend to leave minute scratches on our objects, especially on wax finishes.



Sticks: wooden rods of various diameters and profiles. Used to clean in awkward corners.



Notes & Queries



WEIGHT FOR MUNITIONS?

from Lionel Holland

This disc shaped weight (diameter 26.7mm. thickness 4.7mm.) has identical markings on both sides. It is of brass with a dark brown patina. The verification mark has been somewhat disfigured by a blow, but can still be read: Crown, E5R 08. With Michael's Handbook of Old Weighing Instruments to guide me, I take this to mean that the weight was verified in Manchester, 1908, during the reign of Edward VII. My question is:- What would a 300 grain weight be used for? Taking an analogy from other cases where a small unit is used in large multiples (eg. carats for weighing precious stones,) I wonder if this weight could have been meant for use with one particular commodity or group of commodities? One possibility which suggests itself is in the weighing of explosives for munitions manufacture. Can any reader of EQM throw light on this? And (whether my guess is right or wrong) is there anyone who could give us an article on the use of scales and weights in armaments manufacture?

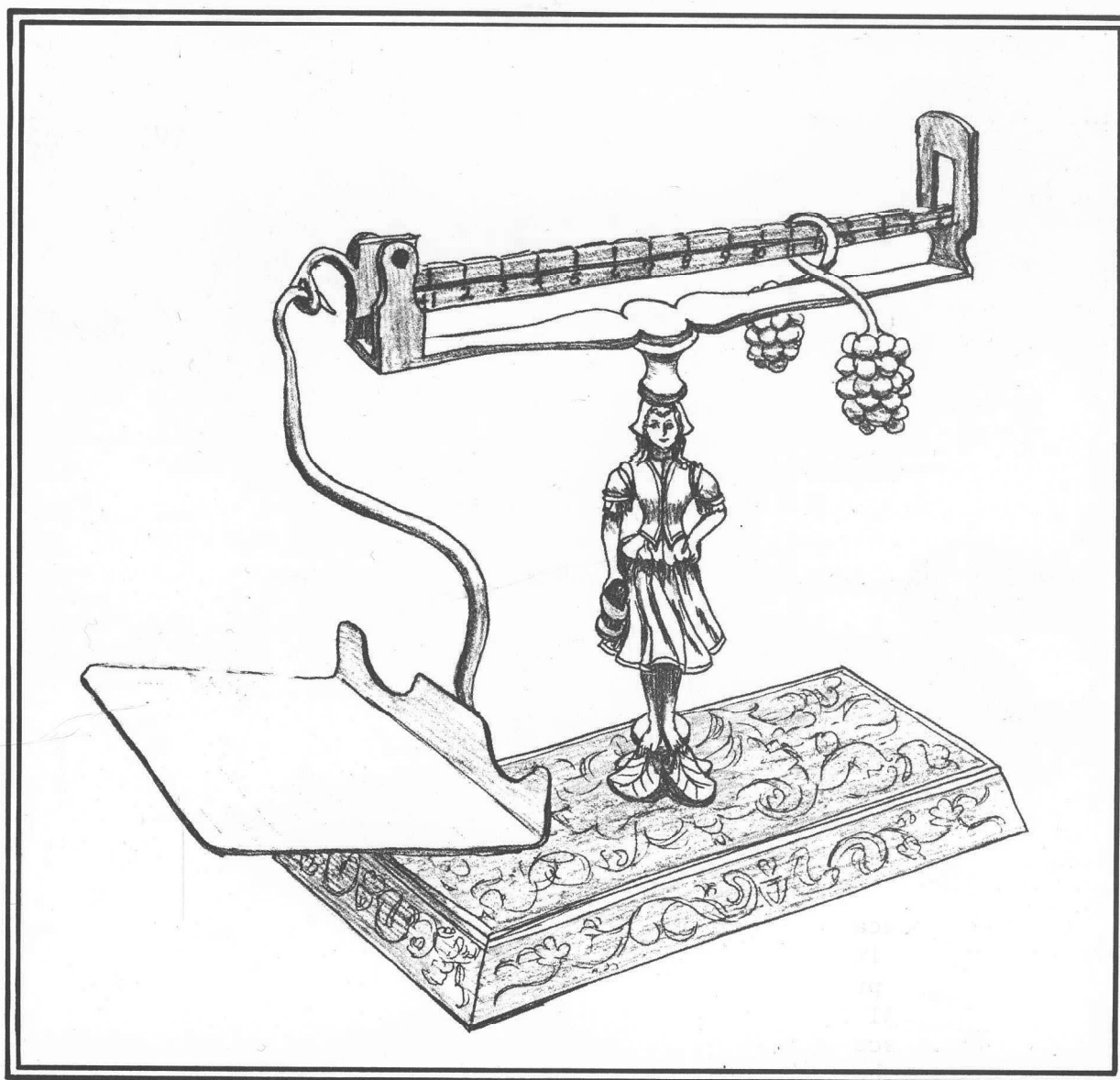


EQUILIBRIUM

QUARTERLY MAGAZINE OF THE INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

1989—ISSUE NO. 4

PAGES 1273-1300



Cover Picture

No, this postal scale is not a figment of the editor's imagination! The only reason that it is drawn not photographed is that the editor had no time to wait for professional developing and printing. This standard Victorian English postal steelyard is usually seen mounted on a straight brass pillar, but two scales are known with a figure replacing the plain pillar. The little black boy is shown on page 1293 and this dainty servant girl with her flagon of wine is shown on the Cover. She is modelled wearing a bobble-fringed kerchief over her long wavy hair, a tight, short-sleeved jacket over her blouse, and her skirt hitched up round her hips, leaving her embroidered petticoat exposed. She is bare-footed, standing on a circular dais. She is gilded, as is the weight, (formed of two bunches of grapes.) The base is red tortoiseshell and brass buhl-work, with straight brass trim. The scale deserves a coloured photograph to do it justice;- perhaps in nine years' time you will see her in all her glory.

See Humans on Scales on page 1289.



INTERNATIONAL SOCIETY OF ANTIQUE SCALE COLLECTORS

Founded September, 1976

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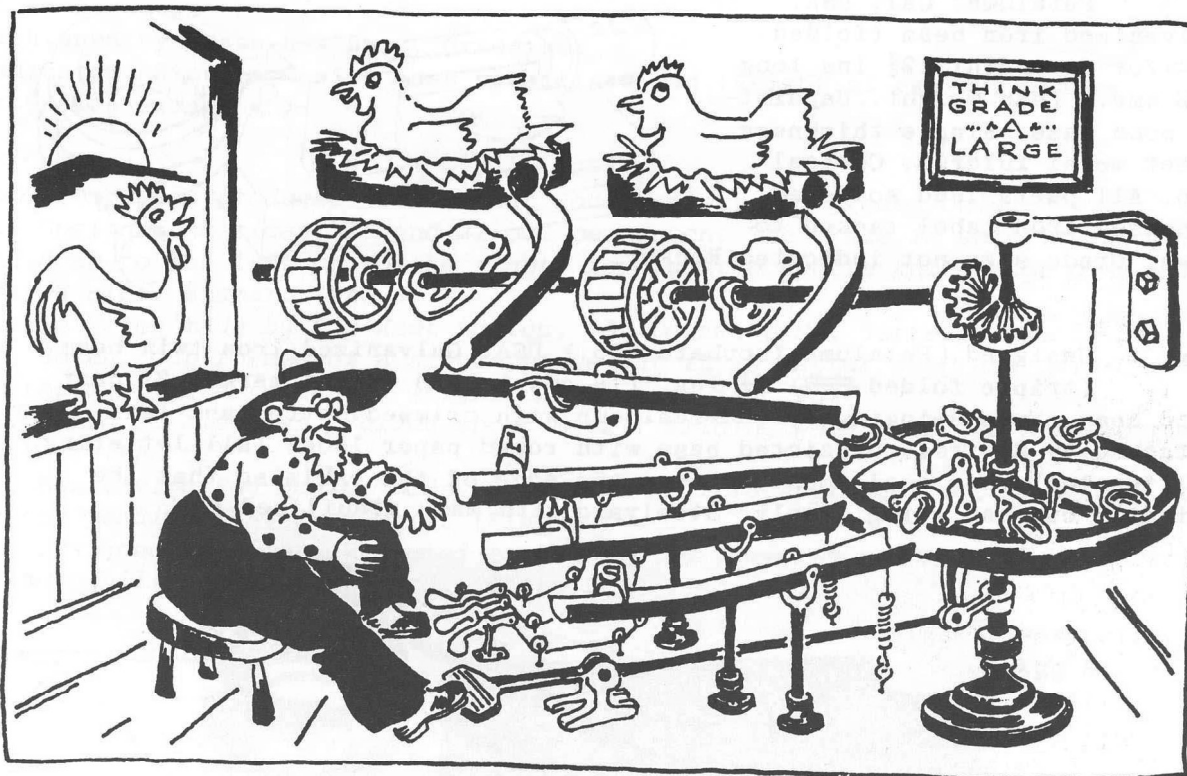
ISSN-0893-2883

Egg Scales Part 4

GOLDBERGIAN VARIATIONS ON THE AMERICAN EGG SCALE

LOUIS COSTA

Louis Costa gave a comprehensive talk on American egg scales to the ISASC Convention held in San Francisco in May, 1989. As editor of the magazine, I was greatly tempted to reproduce his lecture complete, but eventually I decided that it would be too space-consuming and repetitious, so the paper below includes details only of the new material not previously published in EQM. References in parenthesis (MAC -) refer to the illustrations which can be seen on pages 373-384, 410-417, and 919-924.



"The egg basket of the World" was the appropriate title of Petaluma, a small town just north of San Francisco. The electric incubator was invented there in 1879, and at one time it had thirty hatcheries and three thousand egg producers. The demand for egg scales and other equipment must have been heavy and continuous. One company supplying apparatus was the Petaluma Incubator Co. who made three versions of their egg scales :-

A...Petaluma Incubator Co. Long beam with conical cup. (Fig. 1.)

B...Petaluma Incubator Co. Crimped cup. 22 oz. per dozen. Rocker. (MAC 34)

C...Petaluma Incubator Co. Swinging cup. Mass stabilised pan steelyard. (Fig. 2.)

See Rubbing 1 for their name plate.

These three varieties were to find eggs of only one weight. The crimped cup version (MAC 34) and the long beam (Fig.1) counterbalanced a $1 \frac{5}{16}$ oz. egg, a dozen of which weighed 22 oz. Other manufacturers/suppliers produced scales that would select one grade only;-

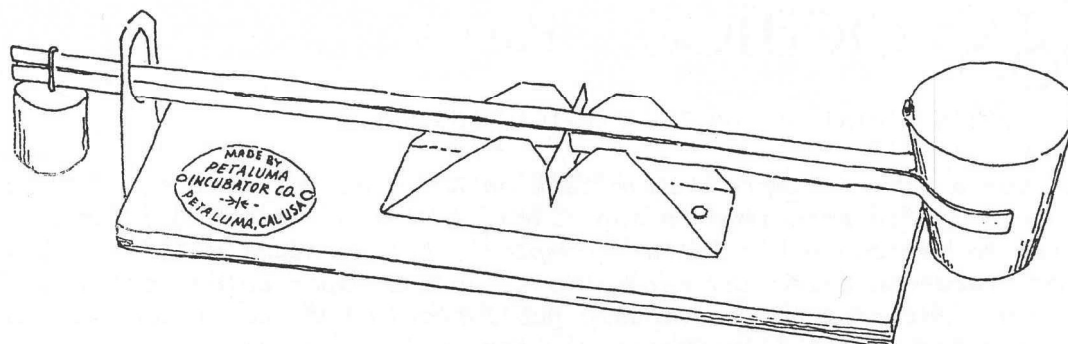



Fig. 1. Petaluma Incubator Co.
Petaluma, Cal, USA.

Galvanized iron beam (folded  for strength) 12 $\frac{3}{4}$ ins long (32 cms.) Lead weight. Unpainted wood base. Single thickness sheet metal fulcrum. Conical cup. All parts lead soldered. Embossed iron label tacked to base. Grade size not indicated. Rocker.

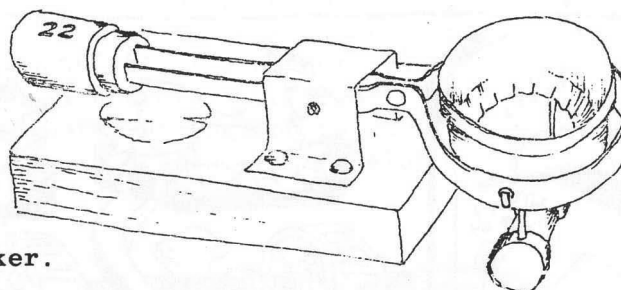



Fig. 2. Unsigned. (Petaluma Incubator Co.) USA. Galvanized iron twin beam (triple folded ) 7 $\frac{1}{4}$ ins. (18 cms.) Lead weight marked 22 cast onto beam. Free-swinging cylindrical cup with crimped bottom and lead attached by 2 wires. Unpainted base with round paper label (all lettering obliterated) This scale must be over the edge of the table so that the weighted cup can swing freely. Steelyard with mass stabilised pan.

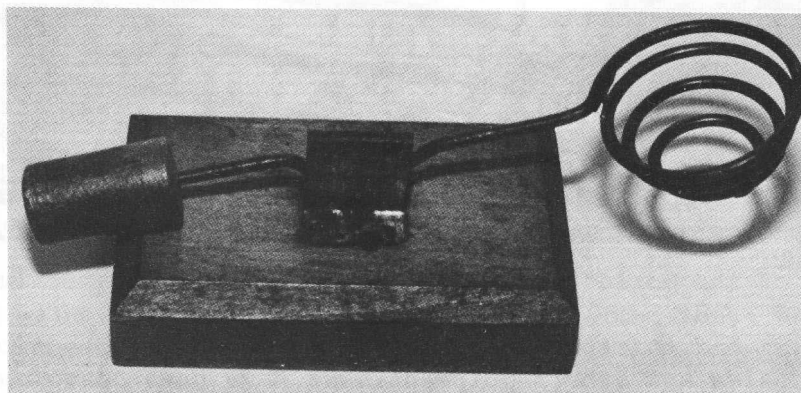
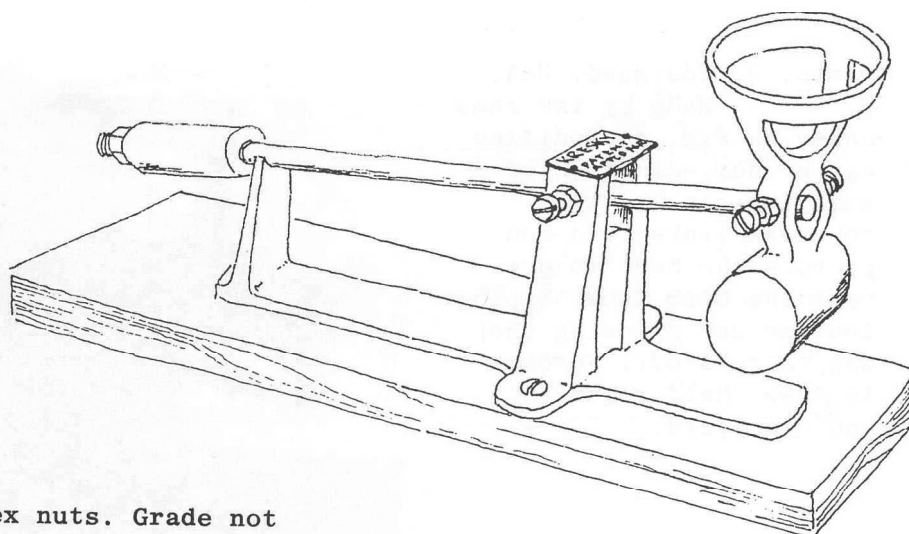


Photo. I.

- D...E-Z Egg Scales made by Carlstedt Mfg Co., Edmonds, Washington. 22 oz. per dozen. Steelyard. (MAC 6)
E...Lincoln Egg Grader Scale, R.V.B. Lincoln Mfg. Escondito, CA. Rocker. (MAC 35)
F...Henry Troemner, Philadelphia. 22 oz. per dozen. Steelyard. (MAC 42)
G...Unsigned American. 21 oz. per dozen. Rocker. (MAC 53)
H...Unsigned American. Coiled wire cup. 23 oz. per dozen. Rocker. (Photo I.)
I...Royal. Thin sheet iron. Some lead under the egg socket. Mass stabilised pan. Steelyard. (MAC 61)
J...Kresky. Mass stabilised pan steelyard. Grade unknown. (Fig. 3.)

Fig. 3. Kresky Pat.
 applied for. USA.
 Beam is an iron rod.
 Egg cup & vertical
 maintaining weight
 cast in 1 piece of
 iron. Cast iron base
 7 ins. long (17 cm.)
 Rod drilled, thread-
 ed & tightened with
 a hex nut. The 4
 pivots are conical
 holes with 4 point-
 ed iron screws
 tightened by brass hex nuts. Grade not
 indicated. Steelyard with mass-stabilised pan. (Height of egg cup causes
 excessive swinging.)



Some companies produced scales that would select two grades only:-

K...Unsigned American. 15 and 21 oz. per dozen. The grade is selected by pushing the beam to the left or to the right, forcing the centre knife-edge over a crescent shaped slot. Bismar. (MAC 4)

L...Berkeley made by Egg Xact Scales, 935 Delaware St. Berkeley CA. 19 or 22 oz. per dozen. Cup formed of a single piece but it is rather deep and covers too much of the egg. Wire turn-over weight, steelyard. (MAC 20)

M...Unsigned American. Folded sheet metal. Sliding weight on rod has two positions. Rocker. (MAC 58)

N...Perfection Egg Scale, made by Pacific Poultry Appliance Co. Inglewood, CA. Patent pending USA. Steelyard. (Fig. 4.)

O...Unsigned American. Presumed to be made by the same maker as the one above. Mass stabilised pan steelyard. (Photo 2.)

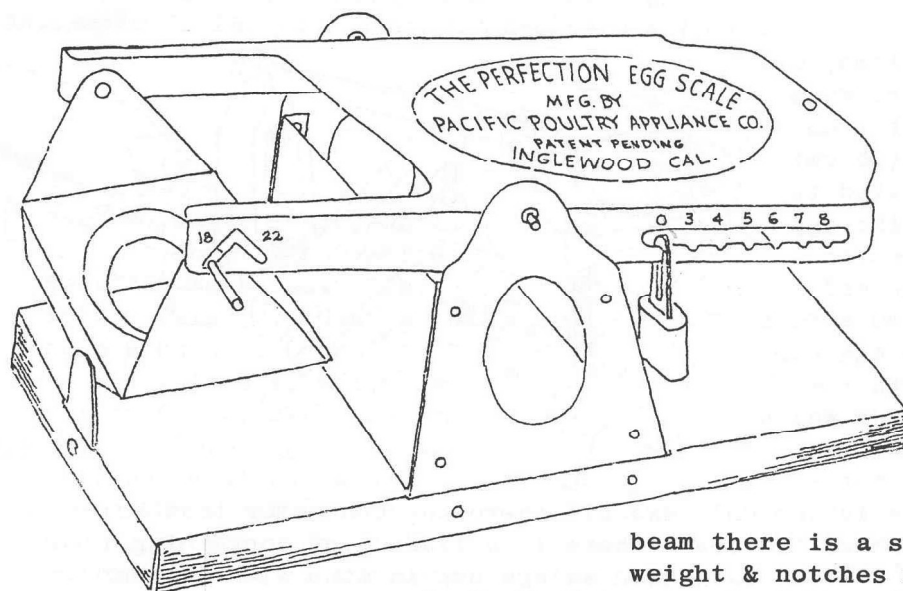
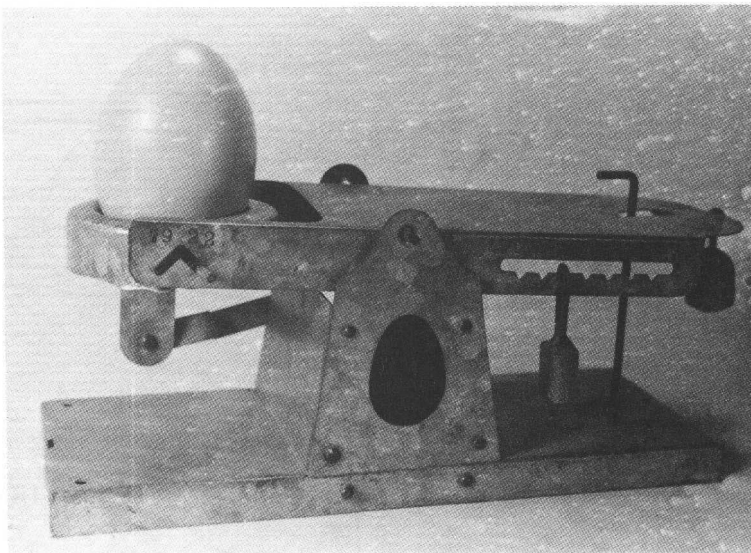


Fig. 4. Perfection
 Egg Scale,
 Mfg. by Pacific
 Poultry Appliance
 Co. Inglewood, Cal,
 Patent Pending, USA.
 Galvanized sheet
 metal. Base $7\frac{1}{4}$ ins.
 (18 cms.) Egg cup
 not galvanized, but
 leaded on underside
 with a unique feat-
 ure of an inverted
 slot marked 18 \wedge 22
 in which the pivot
 pin moves. On the

beam there is a slot with a moveable
 weight & notches marked 0, 3, 4, 5,
 6, 7, 8. Hole at end of beam for suspended counter-
 poise which is missing. Steelyard.

Photo. 2. Unsigned, USA.

Made by the same maker as Fig. 4. Modified egg holder;- instead of a swinging pan, a rigid roberval linkage. A rod pierces the beam to prevent the beam from tipping too far and allowing the egg to roll off. Notches 19 \wedge 22. Half roberval and steelyard.



Only three companies are known who produced a scale that selected three grades:-
P...Speedy, made by Poltriquip Line Reliable Mfg Co. Los Angeles. Directions, 'If beam balances anywhere between lower and middle stop it is over 19 oz. and under 22 oz. per dozen. If beam touches top it is 24 oz. per doz.' Steelyard. (MAC 29)

Q...Kresky, Petaluma CA. The cup of lead shot loaded the beam when swung to the left to balance a light egg against the counterpoise weight. When the cup was at right angles to the beam it balanced a medium egg, and when swung to the right it balanced a heavy egg against the counterpoise. Half roberval and steelyard. (Fig. 5.)

Fig. 5. Kresky, Petaluma, Cal

Pat Appld. For. Beam an iron rod with cast iron weight. $6\frac{1}{2}$ ins long (16 cm). Two square bars rivetted to the beam, one under the egg cup with conical holes on the top side near the ends to receive the pointed screws coming down from the egg cup, and the other bar with the holes on the under side which receive the pointed screws rising from the base forming the fulcrum. This is the only example where the connector that holds the cup vertical is above the beam. There is a lidded cup containing lead shot attached to the fulcrum bar which swings out in line with the bar or back parallel to the beam. All is cast bronze except the iron rod, bars, counterpoise and four pointed screws. Half roberval and steelyard.

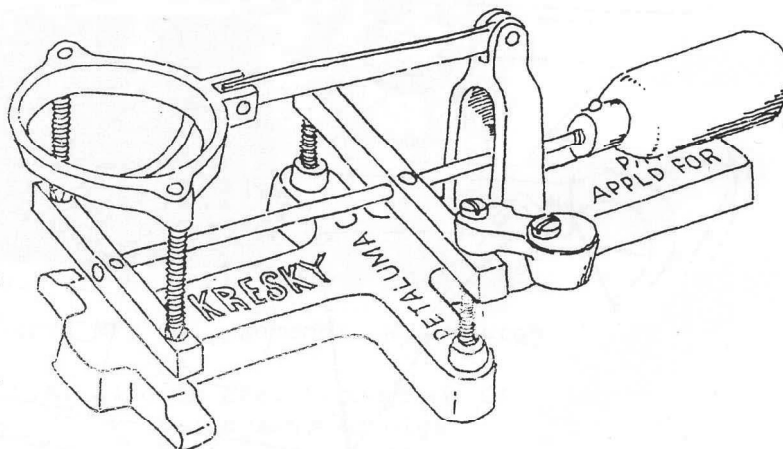
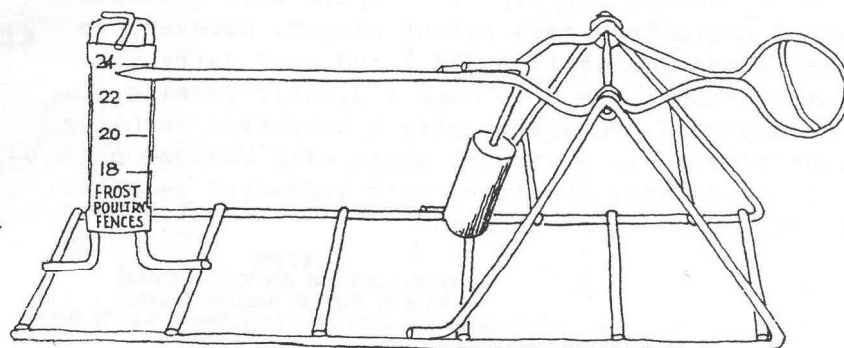


Fig. 6. Frost Poultry
Fences, USA.

Iron wire beam 11 ins.
long (27 cm). Grades 18,
20, 22, 24 printed in
red on yellow painted
sheet metal face. Cylin-
drical iron weight paint-
ed. All joins electric-
ally welded. Rocker.



The ABC Co. produced a scale which selected three, four, or five grades of egg, depending on the number of holes cut into the spade end of the beam;-

R...ABC Three hole version. Markings unknown. Rocker. Not illustrated.

S...ABC Four hole version. 18, 20, 22, and 24 (oz. per dozen) Rocker. Not illustrated.

T...ABC Egg Scale, USA Patent 1941. Five hole version. 18, 20, 22, 24, and 26 (oz. per dozen.) Also sold as the 'Hyda' by Vancouver Importing Co. and by Standard Egg Scales, Vancouver, Canada. Rocker. (MAC 8)

U...Ward's Master Quality Egg Grader, Montgomery Ward and Co. Four grades. Steelyard with weight lifting facility. (MAC 25)

V...Hart, same as above, but, instead of a wooden base, it has a sheet iron base and it has no add-on weights. Not illustrated.

W...D W Hart Mfg. Co. Santa Monica CA. Another model. No details available.

X...D W Hart Mfg. Co. Santa Monica, CA. Another model. No details available.

Y...D W Hart Mfg. Co. Santa Monica, CA. Another model. No details available.

Z...Frost Poultry Fences. Rocker. (Fig. 6.)

AA..Magic Scale. Four grades. Steelyard with turn-over weight. (Fig. 7.)

Fig. 7. Magic Scale, Natl.
Poultry Equipt. Co.

Seattle, Wash. Pat. Des.
105970 (Fig. 8.) Cast alloy
beam & base. 2 holes for
screwing to base which is
not provided. Brass covers
for 4 pivot points. 2 turn-
over weights, one about
twice the width of the
other, giving a choice of
4 grades. Beam $8\frac{1}{2}$ ins long
(22 cm.) Steelyard with
turn-over weights.

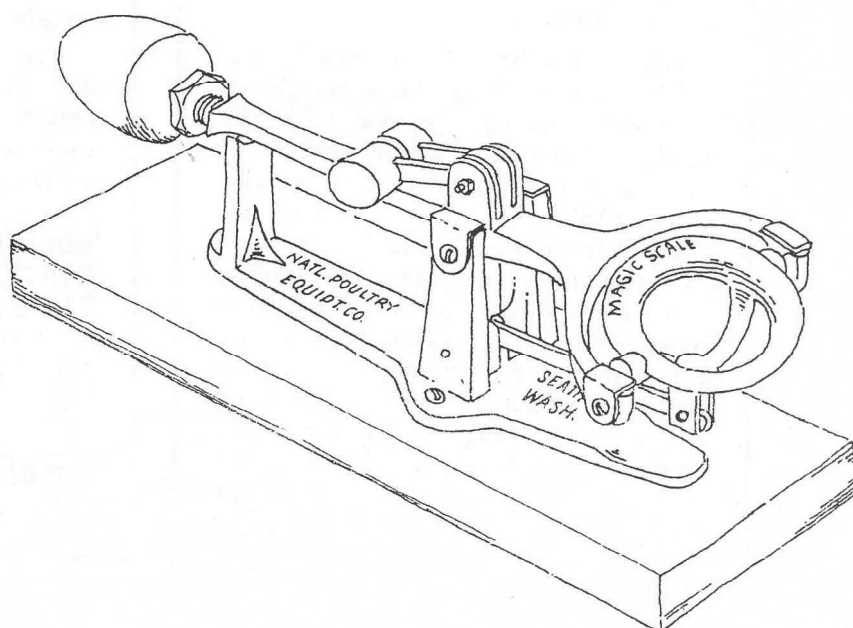
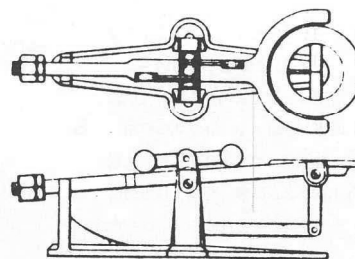
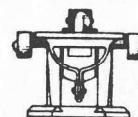


Fig. 8. Patent for Fig. 7. Compare with Reliable MAC 7. Both have same patent number. However, we have three scales like MAC 7 and none carry a patent number. We also have a plastic version of the Magic in cream with slight brown-red marbling. Counterpoise is hexagonal brass with rounded end & iron hex nut. Steelyard with turn-over weights. Is this a war-time version?



105,970
DESIGN FOR AN EGG SCALE
 Ellis E. Powell, Seattle, Wash.
 Application July 14, 1937, Serial No. 70,402
 Term of patent 14 years



Once a scale indicated many grades, the user was much more dependent on the practical common sense of the designer. The scales below show a great range of complexity, and many users must have cursed the fiddly little weights, the number of combinations that had to be memorised, (see White's Instructions for the Gilt Edge Scale, Fig. 9) and the nooks and crannies into which broken eggs could penetrate.

The GILT EDGE EGG SCALE

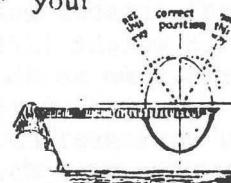
IS MADE in the most substantial manner and under ordinary use will last a life time.

Is quick and easy to operate, and guaranteed to show correct weight on eggs weighing from 18 to 29 ounces to the dozen.

DIRECTIONS—This scale has three lead weights, each weight is numbered on the bottom with the number that indicates the number of ounces to the dozen that it weighs, thus: (18) (22) (26). It also has three copper discs, which are one-twelfth-ounce weights. By adding one copper disc to a lead weight you will increase the weight one ounce per dozen. For instance, you are weighing at 22 ounces to the dozen and wish to increase the weight to 23 ounces to the dozen, add one (1) copper disc. One or all discs may be used with each lead weight. (The copper discs are under the number plate.)

When weighing eggs at any given weight it is only necessary for the egg to rock the beam to be of sufficient weight for your particular grade.

NOTE—The **CORRECT** position of placing an egg on the scale.



CAUTION—All weights are made especially for each individual scale and cannot be used with any other **Gilt Edge Egg Scale**. In event a weight is lost **Return** your scale.

Pack the scale in a wooden box and ship to us. We will repair and return. 25 cents will be charged for each weight plus the return charges on the scale.

If your dealer cannot furnish you with a **Gilt Edge Egg Scale** SEND DIRECT TO THE MANUFACTURERS. Sent post paid to any address in United States and Canada on receipt of \$2.00.

Patented
 United States and Canada

WHITE MANUFACTURING CO.
 GARDENA CALIFORNIA

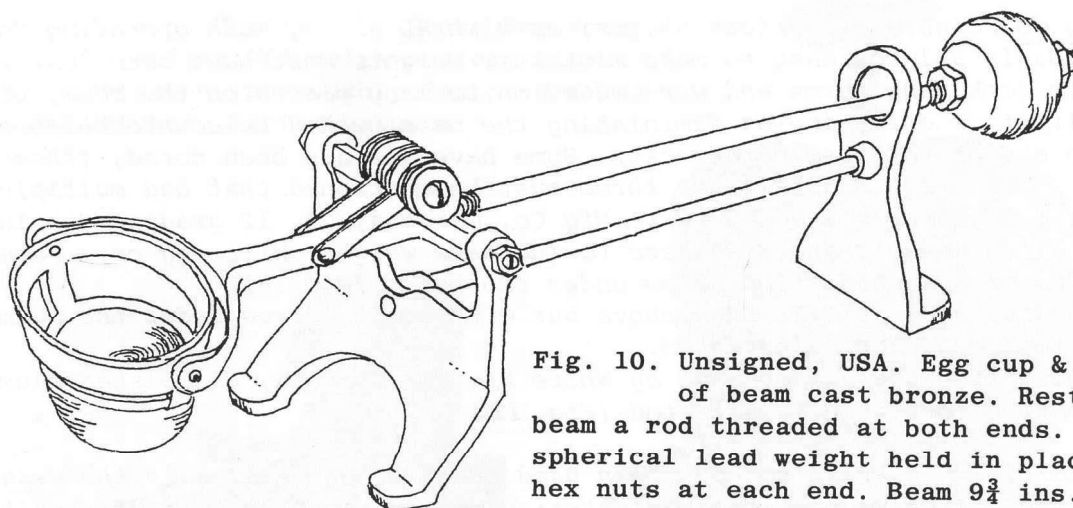


Fig. 10. Unsigned, USA. Egg cup & part of beam cast bronze. Rest of beam a rod threaded at both ends. Almost spherical lead weight held in place by hex nuts at each end. Beam $9\frac{3}{4}$ ins. long (24 cm.) Foot at weight end joined to

front feet by a rod, both ends peened. Turn-over weight hinged at mid-point between fulcrum & egg cup, made of ten washers, held by screw and hex nut. Traces of red paint. Pivots at fulcrum are conical depressions held by pointed screws with screw-driver slots & locked with hex nuts. Grade size not indicated. Steelyard with turn-over weights.

The following egg scales have turn-over weights and multiple grades.

AB..Unsigned American. Grades not indicated. Steelyard with turn-over weight and mass stabilised pan. (Fig. 10.)

AC..White Mfg Co. Gardena, CA. Steelyard with turn-over weight. (Fig. 11.)

AD..Reliable Egg Scale, made by the Reliable Mfg division of James Mfg Co. Los Angeles, CA. Patented 1937. 12 grades. One turn-over weight, loose weights to hang on and loose ring. Half roberval and steelyard. Photo on page 375 of EQM. Also sold by Poltriquip Ltd. and as the Magic Egg Scales. See Instructions on page 376 (MAC 7)

AE..Reliable, same as above but with two turn-over weights and a wooden base.

Price \$2:95. Not illustrated.

AF..White Mfg Co. Gardena, CA. 8 grades. Turn-over weight and steelyard. (MAC 51)

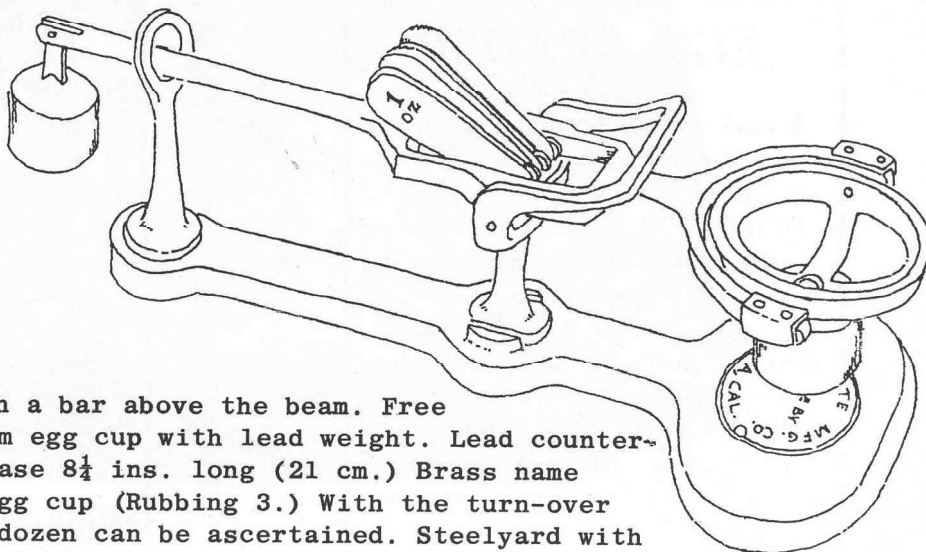


Fig. 11. White Mfg. Co. Gardena, Cal. USA. All cast aluminium with 3 brass turn-over wts. marked 1, 2 & 4 oz. which pivot at the fulcrum but do not rest on the beam

when not in use, but on a bar above the beam. Free swinging cast aluminium egg cup with lead weight. Lead counterpoise stamped 18 oz. Base $8\frac{1}{4}$ ins. long (21 cm.) Brass name plate attached below egg cup (Rubbing 3.) With the turn-over weights 18-25 oz. per dozen can be ascertained. Steelyard with mass-stabilised pan & turn-over weights.

Adding on weights of various shapes, as with AD above, made operating complicated and made it all too easy to make mistakes. Weights must have been lost frequently. Weights took many forms and were added on to many places on the beam, but all had the effect of enlarging or diminishing the mass needed to counterbalance the pre-loaded end of the steelyard/rocker. Some have already been noted, (those with selection for few grades,) but three must be mentioned that had multiple selection:-

AG..Gilt Edge Scale made by White Mfg Co. Gardena, CA. 12 grades. See Instructions (Fig. 9.) 3 weights and 3 washers to increase weight. Wire egg cup. Patent shown page 389 of EQM. Adjusting screw under the beam. (MAC 16)

AH..Ward's, same as Gilt Edge above but without the screw under the beam. Different directions. Not illustrated.

AI..White Line Egg Grader made by White Mfg Co. Gardena, CA. Dished aluminium cup. Instructions only illustrated (Fig. 12.)

A principle only known to have been used once for egg scales is the weight lifting principle, which made a lovely clattering noise in use but was difficult to clean.

- AJ..Acme Egg Grading Scale made by the Specialty Mfg Co. St Paul, Minn. Patent 1924. Sheet steel base. Weight lifting steelyard and half roberval. (MAC 21)
- AK..Acme, same as above but with aluminium base. Cup in line with the beam. Not illustrated.
- AL..Acme. Same as above, but with the graduations marked on the end of each weight, not on a graduated arc. Not illustrated.

Spring scales for weighing eggs were rare in the United States, with only two examples known by Chatillon and one grade-and-candle (to check the hatching potential of an egg).

- AM..John Chatillon and Sons, New York, USA. Flat face straight spring. (MAC 46)
- AN..Same as above but with coloured bands to indicate grades. Not illustrated.
- AO..John Chattillon and Sons, New York. Circular dial spring. (Photo 3)

The WHITE LINE EGG GRADER

Is quick and easy to operate, and guaranteed to show correct weight on eggs weighing from 15 to 25 ounces to the dozen.

DIRECTIONS This scale has three lead weights, each weight is numbered on the bottom with a number that indicates the number of ounces that it weights thus: (15) (19) (22). It also has three copper discs, which are one-twelfth ounce weights. By adding one copper disc to a lead weight you will increase the weight one ounce per dozen. (The copper discs are under the number plate.)

When weighing eggs at any given weight

it is only necessary for the egg to rock the beam to be of sufficient weight for your particular grade.

CAUTION, All weights are made especially for each individual scale and "CANNOT" be used with any other WHITE LINE EGG GRADER.

In event a weight is lost RETURN your scale. Pack the scale in a wooden box and ship to us. We will repair and return. A minimum charge of 50 cents plus return charges will be made for repairing scale. If your dealer cannot furnish you with WHITE LINE EGG GRADER send direct to the factory. Sent post paid to any address in U.S. and Canada on receipt of \$1.85

Patented United States March, 1918
Canada July 1922

White Manufacturing Co.
GARDENA, CALIFORNIA

Fig. 12.

Photo. 3. John Chatillon & Sons, New York,
0-4 oz. To weigh one egg with
great precision, presumably for predicting
a good hatcher. Spring balance.

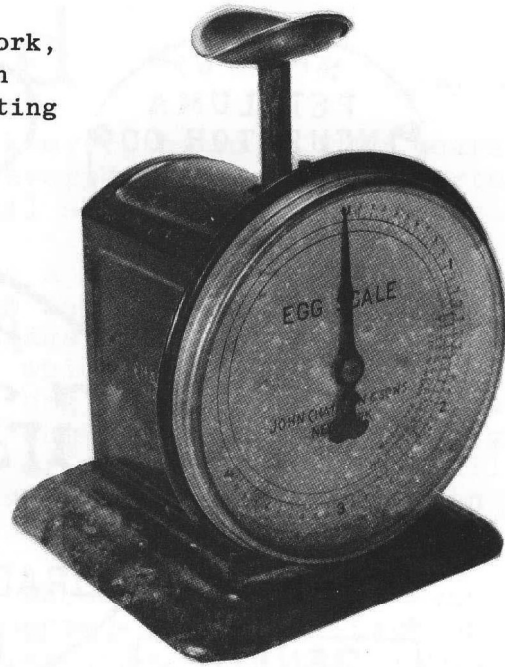
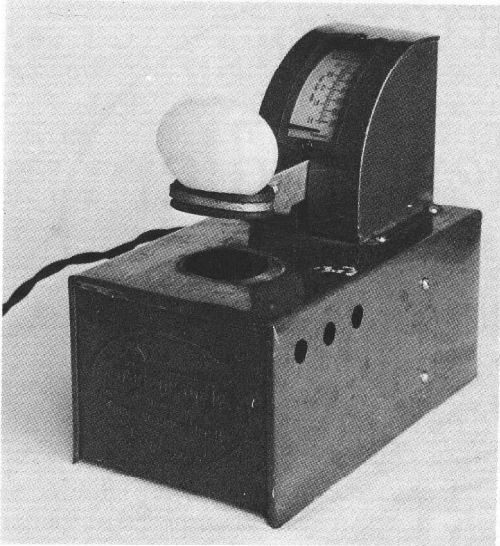


Photo. 4. Poultrymen's Gradencandler, made
by Gradencandle Mfg. Co. Lynn, Mass, USA.
(Rubbing 4)

*One candler should perhaps be mentioned here, the "Gradencandler" which relies
on a spring internally. Made by Gradencandle Mfg Co. Lynn, Mass. (Photo 4.)*

*One grader said that it selected four grades of egg (19-22 oz) but had six
individual rockers mounted side-by-side so that six grades could be selected if
the user patiently moved the egg along the line of rockers.*

*AP.. Hart Egg Grader made by H. W. Hart Mfg Co. Santa Monica, Calif. Six rockers.
(Photo 5)*

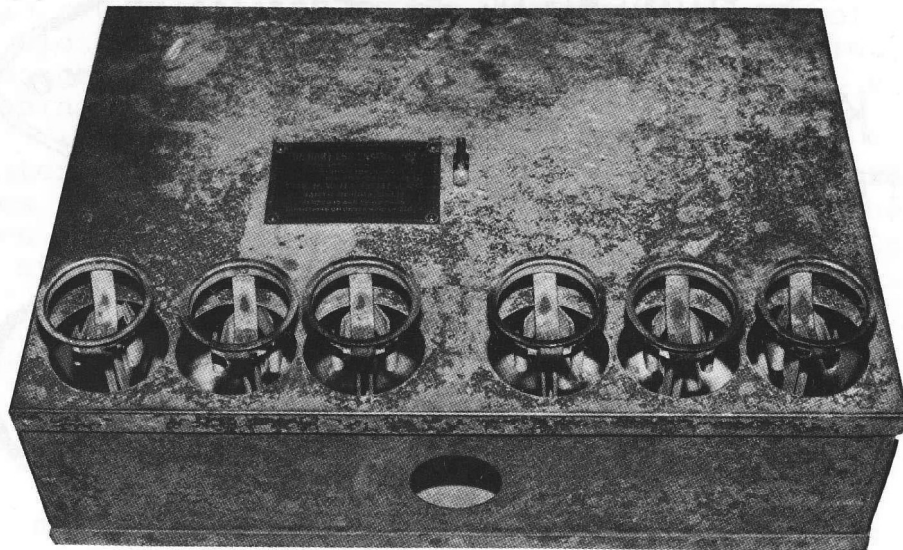
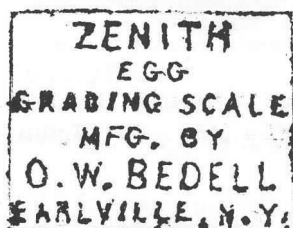
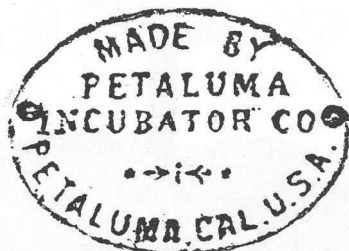


Photo. 5. The Hart Egg Grader. 19-22 oz. Patent Appld. for. Manufactured &
distributed by the H. W. Hart Mfg. Co. Santa Monica, Calif. Tested 19 and 22
oz. to dz. Directions on underside of cover.



KRESKY
PETALUMA CAL



Rubbings on American Egg Scales.

TO BE CONTINUED IN THE NEXT ISSUE.

How I Got Started

Ray Park

I am always amazed when I look back over the past five years or so, and remember what an ordinary everyday occurrence started me off on my quest for scales of all shapes, sizes and ages.

My brother, who had a farm, gave me a harmless-looking set of old shop scales complete with a few battered weights, which had failed to find a buyer at a garage sale he had held to clear out a shed or two. For some reason, which still eludes me, this started me off and from that small beginning I have accumulated a comprehensive collection of over one thousand sets of weighing scales, plus some few hundreds of weights. These are all housed in my home, and will soon overflow into an extension we hope to build in the near future.

I started off by attending all the school fetes, local swap meets, (usually held in a local shopping-centre car-park on a Sunday morning), auctions, house clearances, asking friends and second-hand shops, antique shops and the like, if they had "any old weighing scales" if they weren't visible. I still do, as a matter of fact, as these places are all good sources of supply, up to a point.

That point is reached when you have collected all the common types of scales, like kitchen, platform, shop, spring balance etc. which are the types most likely to be found easily. Then I started looking around for another source, as the previous ones had soon dried up or put their prices way out of all proportion when they got to know me, and my mania for collecting weighing devices. Obviously one is not made of money, and it has to go round all the usual humdrum necessities of life like food, clothing, housing etc. besides the collection; which, although a very important aspect of my life, is not very good at keeping body and soul together.

Here in Western Australia, we are pretty much off the usual trade routes for such things as scales, and a lot of other collectables too, as Sydney, Melbourne and "far off places over East" are the recipients of most of the good stuff.

However, Indonesia, Asia etc. are still within the reach of a limited pocket, and so my wife and I went on a series of "collecting sprees". We got three things for the price of one; a holiday, new places and faces, and also the pleasure of adding to our collection at each place.

We have had many experiences in the back streets of Hong Kong; the markets of Bangkok; the night markets of Cheng Mai; the Himalayan villages in upper Thailand. We have delved into numerous boxes of interesting-looking pieces in street markets

in Penang and Bali; have been surrounded by shouting, laughing natives in Jakarta, who, holding aloft scales of all sizes, ages and descriptions, were intent on getting the best price from us for their wares. We have travelled to England, home of the early morning markets in Islington, Bermondsey and the Angel etc. held in dingy back streets with indoor stalls resembling an Aladdin's cave to our collectors' starved eyes.

We travelled (by coach) over Europe (eight countries in twelve days!) gesturing, miming, showing scale pictures in order to find out if the antique shops had any for sale when they were not readily to eye. Language is no barrier to the true collector.

We have cajoled, advertised and spoken to people in all walks of life in our quest for some scale or other that they had and we wanted. We have never resorted to unfairness though, and the main thing is to keep a good name among the trade, who are among our sources of information leading to yet another different type of scale or weight. Collectors are a breed apart and we give information to one another about "a sighting" of an object likely to interest the other.

We go out in the dead of the night in response to telephone calls from people with a "terribly old interesting scale" that their grandmother had or that had been in their family for years and years, usually only to find that it was one of the ordinary type- but we had to go and find out, didn't we? We get up at the crack of dawn to attend a market, before the public appear, bleary eyed, hoping to get a bargain or two. (A pocket full of loose change is essential as nobody ever has change at that time of the morning).

The infinite variety of the indispensable weighing scale in each country is endless, and we see so many in collections that we could never hope to have but we enjoy seeing them so much.

We joined the I.S.A.S.C. in 1985 and have gleaned so much information and pleasure in the years since, besides visiting several members on our travels, who have welcomed us into their homes, shown us their collections and treated us to some wonderful home cooking in some instances.

Our favourite scale, if there is such a thing, is probably a set that we inherited in a friend's will recently. It looks like a propelling pencil with a scale in the end, which drops down when a cap is taken off the end of the pen. We remember seeing such a pen in a collection in England, which was in the form of a fountain pen.

Our range covers a half-ton monster which weighs people for a penny, to a minute set of letter scales to weigh quarter of an ounce. We gave up at one stage a few years ago, but here we are, still chasing that elusive thing- a rare scale- and they say most of the fun is in the searching.

Humans on

Scales

MYTH AND REALISM

DIANA CRAWFORTH

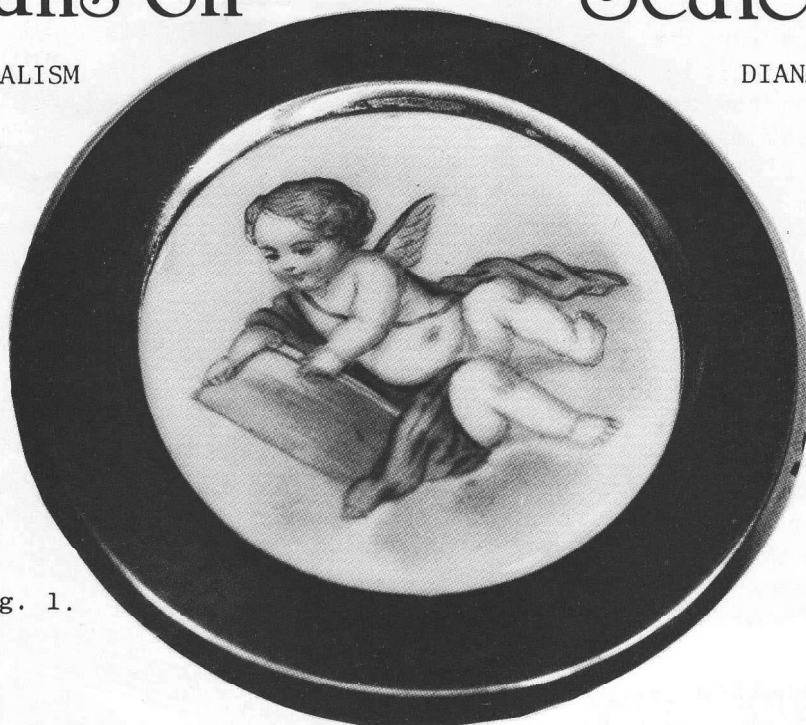


Fig. 1.

Many collectors will be familiar with the pretty cherubs on the porcelain plates of Mordan's postal scales (Fig. 1) These charming little boys gambolled on many English trade labels, household decorative objects and on utilitarian things, such as scales, during the Victorian period (1836-1901.)



Fig.2.

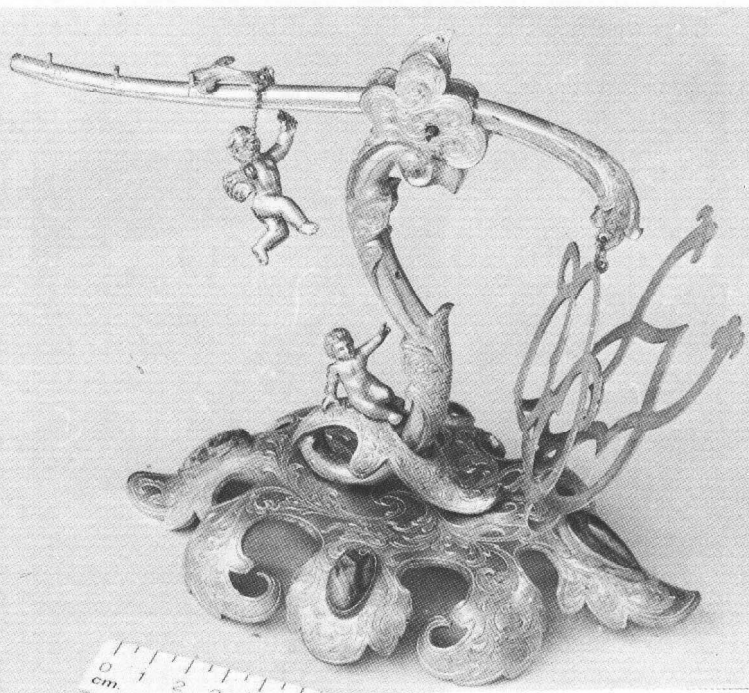


Fig.3.

A cherub sat quietly, (for once!) holding a garland of leaves on his lap, at the bottom of the graduation plate, on the anonymous candlestick made of pressed brass (Fig. 2).

Two cherubs played among the curling leaves on the gilded brass steelyard, (Fig. 3) and half way up the pillar a hole remains where a third cherub was originally attached. The first little boys with wings were part of Greek mythology, shown in their art playing round the gods and goddesses who also had wings, normally.

The satyr was another Greek mythological creature, portrayed by them as a naughty, drunken boy, a companion of Pan. A satyr peeped cheekily out between the vine branches,



Fig. 5.



Fig. 4.

lifting his little hoof up as if skipping with pleasure (Fig. 4.) He wore a wreath of vines round his head and wore nothing but a small bag over his shoulder (Fig. 5) The original letter plate for this scale was of grotesquely ornamental vine leaves and grapes luxuriating round another satyr. Three of these scales have survived, one on a wooden base with an ink-well dated 1856 on its plaque, one on a buhl base and one on a marble base.

The sphinx with a woman's head and breasts also came from Greek mythology, perhaps derived from the male headed sphinx of Egyptian mythology. The single pendulum postal (Fig. 6) was supported by a cool, classical sphinx, kneel-

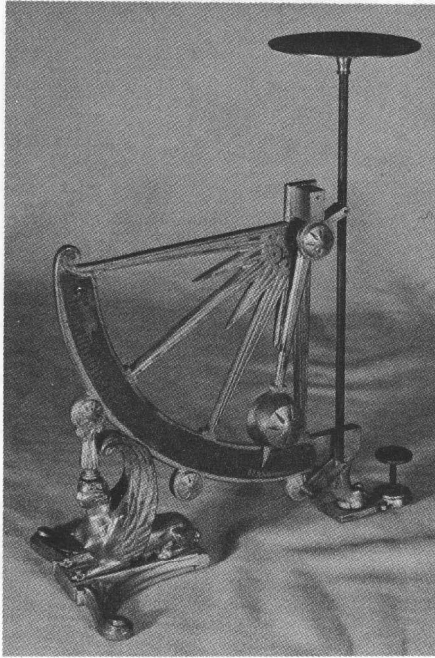


Fig. 6.

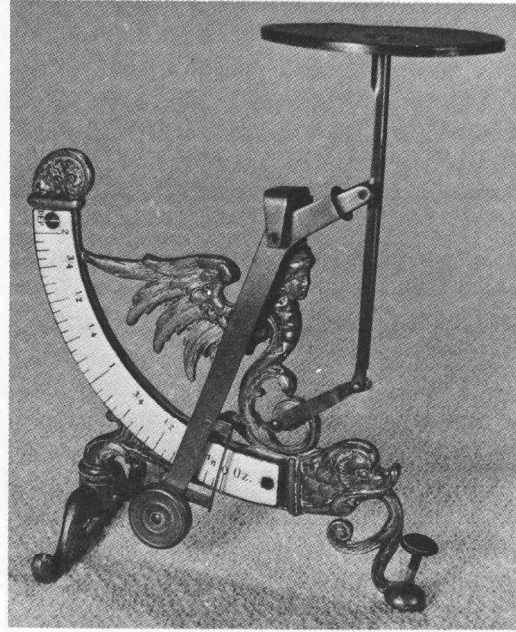


Fig. 7.



Fig. 8.

ing so aloofly, with her neatly bunched lion's body and her sweeping wings curled forward to hold the arc.

The Greeks used caryatids to hold up pillars, but the German scale-makers used a caryatid to hold up a postal scale. This caryatid had strong, muscular wings poised for flight, but her body was etiolated into a mere decorative flourish. (Fig. 7.)

Supernatural beings also entered Roman art and culture. They portrayed their gods and goddesses on their bronze steelyard weights. Mercury, with his distinctive winged helmet, stared out at the user who had to move this large weight, 13 ins. (22cm.) long, on a blade perhaps a yard or a metre long. Mercury held a gold pouch out in his right hand - to remind the merchant that he too could earn a fortune if he traded well?

Western Europeans adopted the Roman goddesses of Justice (Justitia) and of Trust, Faith and Honour (Fides) as symbols of honesty. Conventionally, Justitia was shown blindfold, so that she could dispense justice without favouritism, but she was also shown clutching the shears and pointer together so that the beam could not tip. Was that to symbolise Justitia taking her time to consider carefully before coming to a decision? Coin scale labels frequently showed Justitia, to remind the user that honesty was essential, and

that God abominates a false scale and the using of heavy weights to buy or of light weights to sell. (Fig. 9.) The English usually portrayed her looking placid and detached, an observer not a participant.

A tiny vivacious figure of Justice ornamented one of the highly decorated coin scales probably made in Vienna at the beginning of the 19th century (Fig. 10.) The shears and pendant of Austrian coin scales were usually heavily elaborate twirls and twiddles of the most exquisite workmanship, needing the highest skills to produce the mixture of fine and

Fig.9.



heavy brass casting round the sight-hole shears. Justice herself, with her cloak billowing up past her shoulder, flourished her scales in her left hand and held her sword sticking out ready to punish the guilty. This Justice was no calm observer—this Justice was an active creator of lawfulness.

Sometimes it is difficult to decide whether a figure was intended to represent Justice or not, if she was not blindfolded. Thomas Croome's trade label (printed between 1751 and 1786) showed a placid goddess sitting on cumulus clouds, gently meditating on her fine sight-hole scales, undoubtedly Justice even though she could see. (Fig. 11)

Fig.10.





Fig. 11.

porcelain plates so that they could wash off the blood (from the meat) and the smears of fat (from the butter.) The plates commonly showed Justitia and Fides with a British lion resting at their feet looking as domestic as a cat and as ugly as a gargoyle (Fig. 13.)



Fig. 13.

The idea of Justice holding up the Prince of Wales feathers, with a real scale pinched in the plumes, is rather more peculiar. (Fig. 12.) This English postal scale was similar in style to H.B.Wright's boy scale (Fig. 16) and was probably made at about the same time (1839). Again, she was calm and immobile, her sword resting on the ground, unsheathed but held in a passive grip in her left hand, not ready to use. The parrot on his ring also looks as if he might be asleep, certainly not about to squawk in her ear!

Trade scale users in Victorian Britain began to consider hygiene and bought Roberval scales with





Fig. 14. See also page 1274;- Britannia guarding London, on a token by John Kirk.

Another symbolic figure thought up by the Romans was that of Britannia, to represent the island of Britain. She had a trident because she was a sea goddess, a shield with the British flag on it, and a helmet to show her preparedness for battle (Fig. 14.) We may see her as a heroic figure, but the artist who had to draw this design was told to use the King's mistress as his model. Of course, being a tactful man, he did! The British have always enjoyed jokes against themselves- and what greater joke can there be than to symbolise the country with a woman of easy virtue?

The classical female form was much admired throughout the 19th. century, and Wedgwood made a fortune producing coloured clay pots in blue, green or black Jasperware, with plain white figures in relief stuck on to the coloured clay. The figures were very fine copies of Roman ladies in flowing robes, nude children playing, people lounging as they ate and all living in idyllic peace and contentment. A very Romantic view of antiquity! Samson Mordan bought many oval and circular medallions of Jasperware to ornament his postal Robervals between about 1840 and 1880. (Fig. 15.)

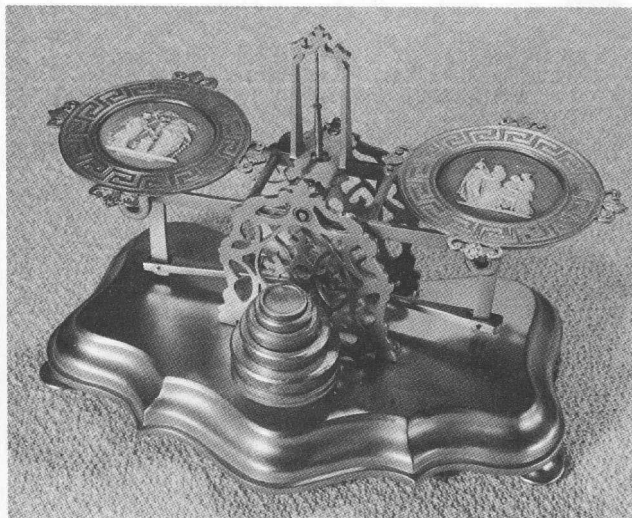


Fig. 15.

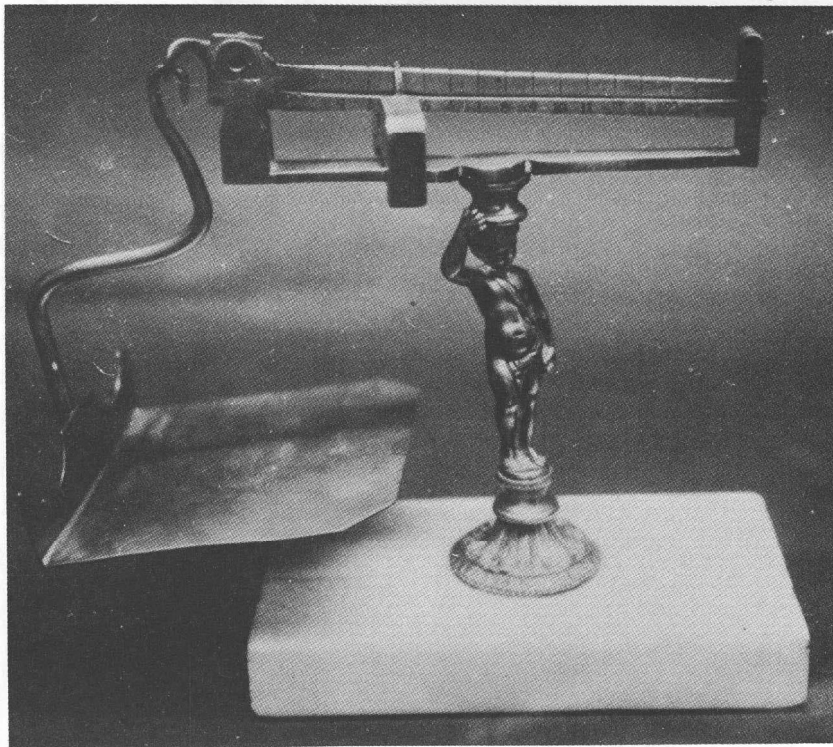
Even when the scale-maker modelled a black boy, he did not seem realistic! H.B.Wright had him kneeling obediently, forever holding up his scroll of leaves, with the heavy roll of brass, above his head (Fig. 16.) His expressionless face showed no pleasure, no pain, none of the emotion a normal little boy would display. The combination of patinated brass and gilding was charming, a popular desk centre-piece, but it hurts to look at him, doing his duty so subserviently.

More servility was demonstrated by the nearly naked child (Fig. 17) holding



Fig.16.

Fig.17.



his hand to his head so pathetically. Wouldn't you have a headache if you had to support a postal scale for 100 years? He turned away from the dreaded letter hanger (hooked on the wrong way round) but he stood, feet firmly planted, docile to the end.

The baby smiling out from his long swags of cloth, carried far more conviction. Here was genuine childhood portrayed by Melot and Putzeys, a firm in Liege in Belgium (Fig. 18.) The satyr's hooves

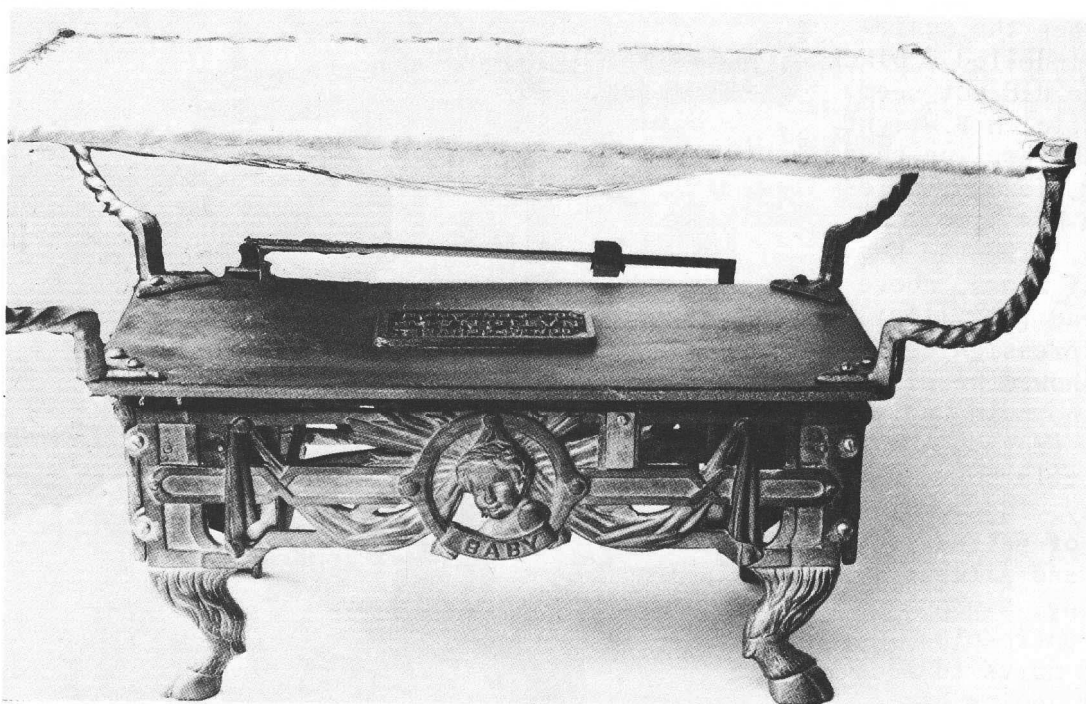


Fig.18.

seemed inappropriate, but they made a sturdy flourish at the corners of the modified platform scale with steelyard. The modification was made by adding 4 twirling brackets to the platform and slinging a white canvas hammock between them to cocoon the baby while he was weighed.



Fig.19.

At last, real people, clothed, muscular, capable of independent action and of earning a living! The boy (Fig. 19) earned his money by going from street light to street light, igniting the gas jets at dusk from his torch (here modified into a holder for a candle, used to melt the wax to seal the envelope.) He was barefooted and scruffily dressed, but he looked pleased with



Fig. 20.

life, striding confidently across the pavement, turning his head to look at the pre-loaded weight resting in its bowl. What was that doing, on the pavement? The curiosity of the boy was permanently caught by the sculptor.

The same firm probably produced the stern-faced post man (Fig. 20) with his uniform of tail-coat and top-hat. His torch was modified to take the beam of the letter scale, which has unfortunately lost its pear-shaped weight and its letter-hanger. Round his neck went the broad leather strap to take the load of the box of letters, (modified to hold stamps.) He strode uncompromisingly across the cobbles, which were laid over a curved groundwork, to allow water to run off the road. This was Victorian England as she wished to be viewed-dignified, reliable, providing services for the

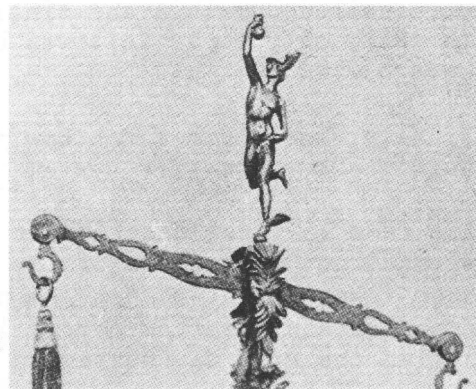
community, not to be trifled with! Pity about Britannia's morals!.....

The author wishes to thank R. Wagers, the Wortt. Landesmuseum, Stuttgart, Bill Doniger, the Avery Museum, Bob Stein, Lou uit Den Boogaard and Betty Wright for their contributions to this article. The author also wishes to apologise to the readers for the poor quality of some of the photographs, which were taken in difficult circumstances at antique fairs, behind glass in museums or in friends' gardens.



Bankers on J F Wolschot trade card.

Mercury finial on bankers' scale by Testut of Paris.



Review

L'AVENTURE DU METRE

Review by G Batz

The year 1989 will not only be remembered for the 200th Anniversary of the French Revolution but also, for metrology buffs, as the year of an extensive exposition by the National Technical Museum of France (Musée National des Techniques) of 118 objects in its collection relating to Weights and Measures.

Not since 1941, the publication date (under less auspicious circumstances) of a comprehensive catalogue of their scales and weights inventory, has the museum published such a compendium.

The museum is at 270 rue Saint-Martin in the 3rd district of Paris and the exhibition which commenced on April 4th will be closing on October 30th, 1989.

For those who can make it to Paris this year, the items on display will be a veritable feast for the eyes. For them this catalogue will become a valuable reminder of many pleasant hours of viewing and/or study. For others, such as me, not going to visit Paris this year - alas - this book seems more than just a listing of items.

The first 74 pages are a lively account of the adventures and misadventures of the metre. Yes, misadventures too, as though readers need to be reminded of the teething troubles of the Système International throughout the English speaking world.

In separate short chapters, following a 2-page chronology from 1790 to 1983, the book recalls: the principal units of measurement in and around Paris at the end of the 18th century; the same for the provinces; and one for France's neighbours of the day; the need for a universal measure; how the merchants clamoured for a change towards uniformity; and the developments that hastened the reform with provisional legislation in 1793.

This is followed by similarly concise yet comprehensive chapters on the introduction in 1795 of the new system; how progress came to a halt in 1800 with the return to the old names for the new measures (1000 grams were called one lb!) and finally, the collapse of this interim solution in 1812, only to be followed by yet another half measure, (now 500 grams were called one lb).

Finally the book relates how in 1840, after three years of advance "softening up", the metric system became established for good in France.

The last 25 pages describe in great detail the 118 items on exhibition, complete with direct quotations of the inscriptions and photos which record 41 of them in excellent manner. Among the items on display are not only ancient French standards from before 1500, such as the magnificent nested weight called the Pile de Charlemagne and a set of royal grain measures, but also

an eight pound nested weight made at Nuremberg 1770-80 and adjusted in Paris for the standards of the French mint.

Moreover, there are the gifts to the French governments of standards, weights and measures by many nations, including the United Kingdom, the United States and several German kingdoms and city states, among others.

The book-cum-catalogue has a biography of the major players in this universal change, and concludes with a short biography, followed by credits for the team of collaborators who made it possible in time for the celebrations. Well known among these to many members should be Aimé Pommier, the secretary general of our French sister association, Société Mètrique de France. He signs himself responsible in several categories, as commissioner of the exhibition, editor of the text and of the notices. This assures us of the excellent qualities of this work. I hope that he will continue for a long time to review the weekly mail the museum receives on the subject of weights and measures.

L'Aventure du Mètre, Les Arts et Métiers en Revolution, 1989, CNAM Musée National des Techniques. In French but easy to read for a metrology beginner with a basic knowledge of French. 103 pages; 82 pictures, 8 in colour and 11 in sepia tint, and 12 charts. Format 7 x 9 1/2 inches (18 x 23.5 cm). Price 60 francs (presently US \$8.95) from the Museum.

Review

PONDERA MEDICINALIA

Review by N. Biggs

This book is the most comprehensive attempt yet made to survey the whole field of apothecaries weights, from ancient times to the present. It is not, of course totally comprehensive - there is very little about weights from Eastern civilisations, for example. Nevertheless, it contains a great deal of useful material which will be of value to collectors & researchers. The text is given in both English and Dutch, and there are 157 photographs with explanations in Dutch, English, French and German. There is a good bibliography, but no index.

The book opens with a short section on the evolution of the common symbols used in medical prescriptions. In particular, it appears that the symbols for the scruple and ounce are derived from the Greek letters Υ (gamma) and Ξ (xi) respectively. The symbol for a drachma is more problematical; it may go back to an ancient Egyptian symbol, or it may be a curious amalgam of some Greek letters.

The first chapter describes the development of weight systems in general, and apothecaries weights in particular, from ancient times up to the early middle ages. It is clear that the Roman system forms the basis for almost

all Western weights, although it has been altered at many different times and places. The most important evidence for the transition between the Roman system and modern apothecaries weight is probably that recorded in the works of the famous medical school at Salerno, which flourished from about 1050. The Salernitan system differed from the Roman system only in that a scruple had 20 grains (instead of 24) and an ounce had 9 drachms (instead of 8). The change back to 8 drachms per ounce, which is the modern system, is ascribed by the authors to a certain Nicholas Praepositus around 1500. Undoubtedly this division was used by him, but there seems to be no reason to suppose that the change was entirely his own doing. (Incidentally there is a very confusing misprint in the English translation at this point - page 36 - where the word pound is used instead of ounce.)

The remaining chapters survey the development of apothecaries weights in various countries from the late middle ages to modern times. Each chapter contains much valuable information about weight systems, apothecaries guilds, and (most important for the collector) descriptions of the weights and scales used by apothecaries. There are many illustrations, most of which are well-chosen. The authors do not claim that these chapters present the last word on the subject, and in several cases their comments open up many interesting lines of research. The English translation is slightly confusing at times (one misprint is mentioned above) but I noticed few serious errors. Perhaps the most unfortunate is the implication (on page 60) that the term *Avoir-du-pois* is derived from "*avoir du pois*", meaning "to have weight". In fact it is derived from "*aver de pois*" meaning "goods of weight". The authors do indeed state that originally the term was applied to goods, rather than weights, but they confuse the issue by giving the wrong derivation.

Concentrating on Chapter III (Great Britain and North America) here are some of the problems which occur to me at first reading. When did the modern apothecary system replace the Salernitan one in England? Both systems are described in English manuscripts assigned to the 15th century (*Select Tracts Relating to English Weights and Measures* (ed. Hall and Nicholas), *Camden Miscellany* XV, pages 33-35), and one Latin rendering uses almost exactly the same words as are used in the Salernitan Regimen quoted on page 35 of the *Pondera Medicinalia*. Does this indicate that both systems were disseminated by monastic orders with centres throughout Western Europe? At what period were small lead weights used by apothecaries? Such weights are found fairly frequently in late medieval sites in England and they seem to conform very roughly with the modern system. When did the use of brass apothecary weights begin? I know of no such weight which can definitely be ascribed to pre-Georgian times, although much evidence suggests that these weights were used in the seventeenth century. (Incidentally, the scale illustrated in Figs. 46 and 47 of *Pondera Medicinalia* is not pertinent to this question, since it is clearly a typical coin scale of Charles I, with some odd coin weights and apothecary weights added later.) Did John Kirk produce apothecary weights bearing his signature? His scale box label (Fig. 52) advertised that he made apothecary weights, and we know that he produced many beautiful coin weights bearing his signature, but I know of no one who has seen a signed Kirk apothecary weight. What is the significance of the rose (or rosette, or star (Fig 43)) stamped on many of the older square brass apothecaries weights? If it is, as seems likely, a verification mark then there should be some documentary evidence for it.


These questions are not intended as a criticism of *Pondera Medicinalia*. The book provides the framework within which such questions can be asked, and indicates some likely sources for further investigation. It is the first book to do this, and the authors are to be congratulated for taking the all-important first step along such an interesting road.

Pondera Medicinalia by Daniel Vangroenweghe and Tillo Geldof is published by the Centre for the Study of Apothecaries' Weights, Baron Ruzettlaan 198, B-8320 Brugge-4, Belgium. It may be obtained by sending 1700 Belgian francs to Tillo Geldof at Kortrijksestraat 114, B-8700, Izegem, Belgium.

Notes & Queries

NQ107 DAVID NAPIER, PEWTERER

query from D. Bradbury

I have a coin scale "Made & sold by David Napier, Pewterer & Brazier, Eastgate Street, Chester", with a list of coin weights for the guinea, 1/2 and 1/4, the Double Johannis, down to the 1/8, and the Moidore down to the 1/4. The pans are stamped , and the cords are black silk. Do you know of any other coin scales made by a Pewterer?

REPLY

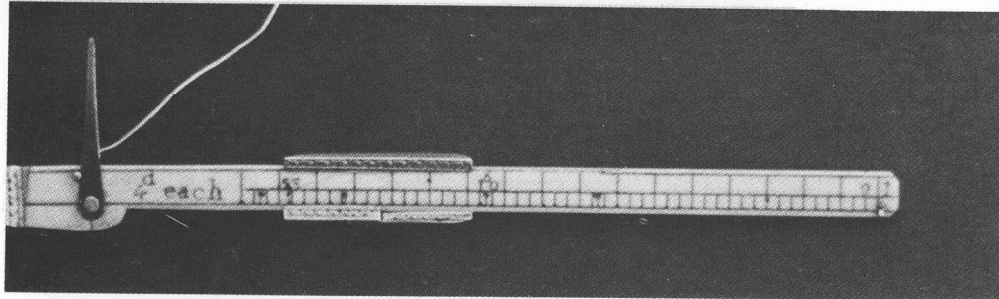
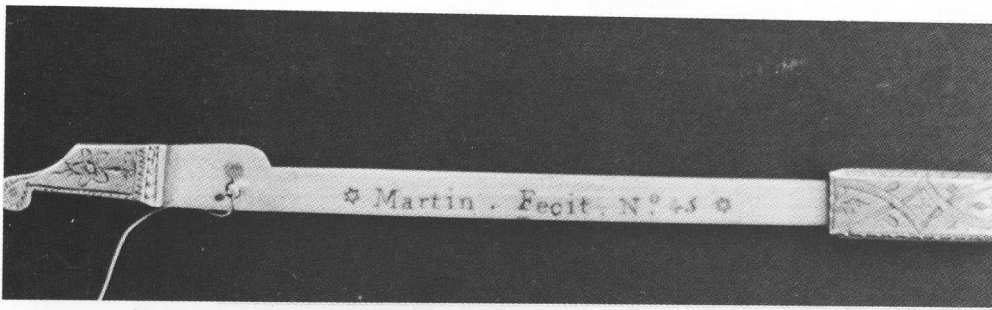
from the Editor

This scale was made between 1762 and about 1780, by a maker of whom I have never heard. Pewterers were not making such a good living by 1780, with the new fashion for china tableware just beginning, so Napier must have been relieved to have a good second trade. Brassware was just starting its surge in popularity, as (at last) British brass manufacturers had a source of pure zinc and could supply good quality brass at a reasonable price. The new lovely golden brass was used for candlesticks, high-quality goods imitating silverware, and of course scales. Chester was a prosperous market town and Napier would have had a steady sale for his products. Living in the Provinces, he made his beams differently from the way a London maker would have made them, and he was most unconventional in stamping his pans - that habit had died out by about 1680 in London. I know of no other coin scales made by a Pewterer, as the trade of Pewterer was usually completely separate from that of blacksmith (for steel beams) or brass worker (for cast brass scale parts).

NQ108 MARTIN GUINEA SCALE

query from George Mallis

I enclose photographs of a most unusual Guinea scale, made of ivory, only about 4 inches (10 cm) long. The clip is missing, as is the suspension cord. The slide looks like silver but there is no hall mark on it. The 10/6 and 21/- are clearly indicated, as are the 4d. graduations. "Martin fecit, No. 45" is on the reverse. Who was Martin? When was the scale made?



REPLY

from the Editor

How fortunate you are to have a Benjamin Martin "dog" (do'tchin) as he called it, even if it is missing its clip and cord. Martin wrote a fascinating pamphlet (to encourage people to buy his steelyard), which Michael precised on pages 299-303 of EQM. Martin sold many types of scientific instrument, discussed in a fascinating way by John Millburn in his books on Martin (sold by David Coffeen, a member of ISASC). It is suprising that he considered it worth his while to design and manufacture his own delightful little scales, when he was already selling Anschultz & Schlaff's pendulum coinscales (see page 269 of EQM), but with the upsurge of interest in checking guineas after the great recoinage of 1772 he must have made a good profit from them. He made a simpler version with an ordinary pan and cords (see photo on page 269 of EQM) in an elaborate shagreen case which truly looks like a do'tchin.

This scale must have been made between 1773, when he first advertised them, and 1782, when he died. Martin's shop was at 171 Fleet Street, a major thoroughfare in the new, prosperous part of London, surrounded by other instrument sellers and busy shops selling all types of luxuries. The slide did not need a silver-mark because it weighed under 1/2 Troy ounce. Martin numbered his instruments in the same way as Clockmakers did, the highest number known being no. 4840.

